VOL. 171, NO. 2 AUGUST, 1949
AUG 23 1949

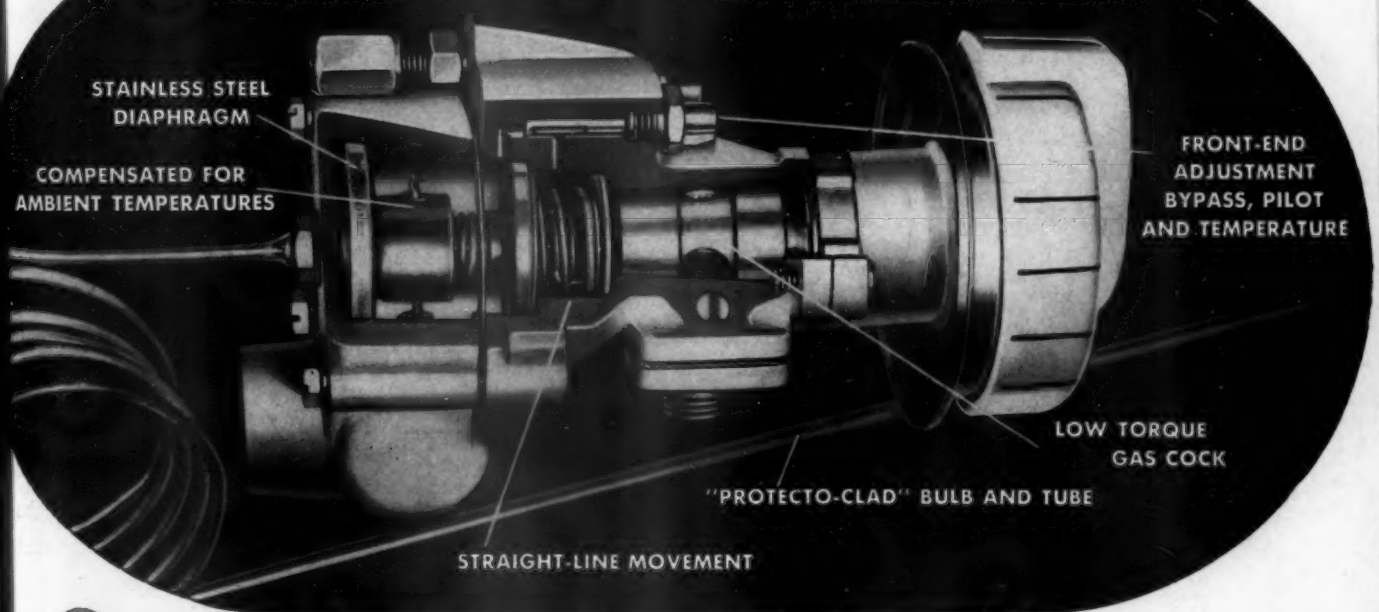
American Gas Journal

10,000,000 IN USE

In addition to these important features Model BJ Thermostats have an important hidden quality that no camera can record. It's the "know-how" accumulated through fifty years of experience producing efficient, dependable controls for a wide variety of uses in home and industry.

SEP 1 1949

ROBERTSHAW MODEL BJ—TODAY'S LEADING GAS RANGE OVEN THERMOSTAT



In home and industry, EVERYTHING'S UNDER CONTROL

Robertshaw-Fulton

CONTROLS COMPANY

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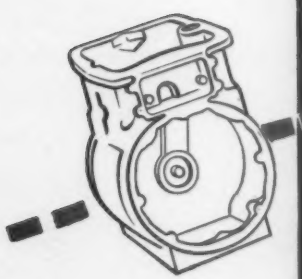


Continuous Machining—

PERFO

Know-How! . . . It is the most important ingredient in the fabrication of a product.

Its presence in the production of gas meters for measurement can be the one factor needed to secure (for users) a satisfying return on meter investment.

Know-how in American Meter Company is easily defined—it is based upon the experience and ability of experts who know *where* to make an improvement in meter design and construction . . . and *how* to do it.

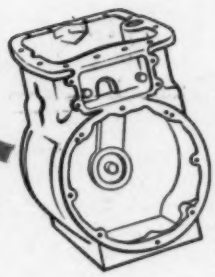
"American" know-how has made possible the elimination of many separate milling, drilling, and tapping operations by combining them in the single, "Progress-Through" machine pictured here.

"American" know-how designed the machine. "American" know-how supervised its construction. The meters which benefit from its super-accurate positioning of drills and taps inherit the know-how to give superior measuring performance—for year after year of service.

PRECISION MANUFACTURING

©C1B 206460

MORE THAN 100 PRODUCTION TOOLS *mill, drill and tap meter bodies which are held rigidly in moving fixtures. This new American Meter Company process provides undeviating accuracy for the positioning of the sub-assemblies which follow.*



One Reason Behind "American"

ORMANCE

AMERICAN METER COMPANY

INCORPORATED (ESTABLISHED 1836)

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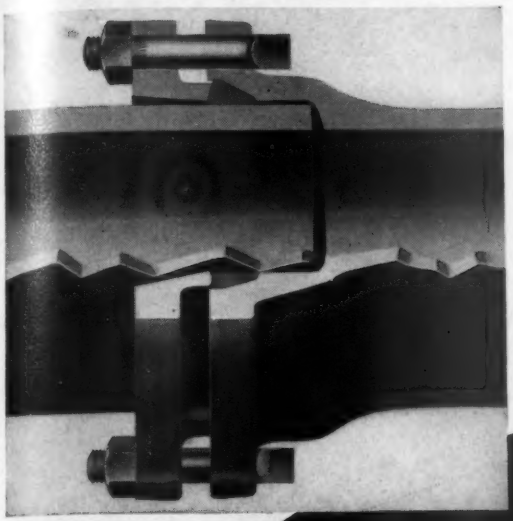
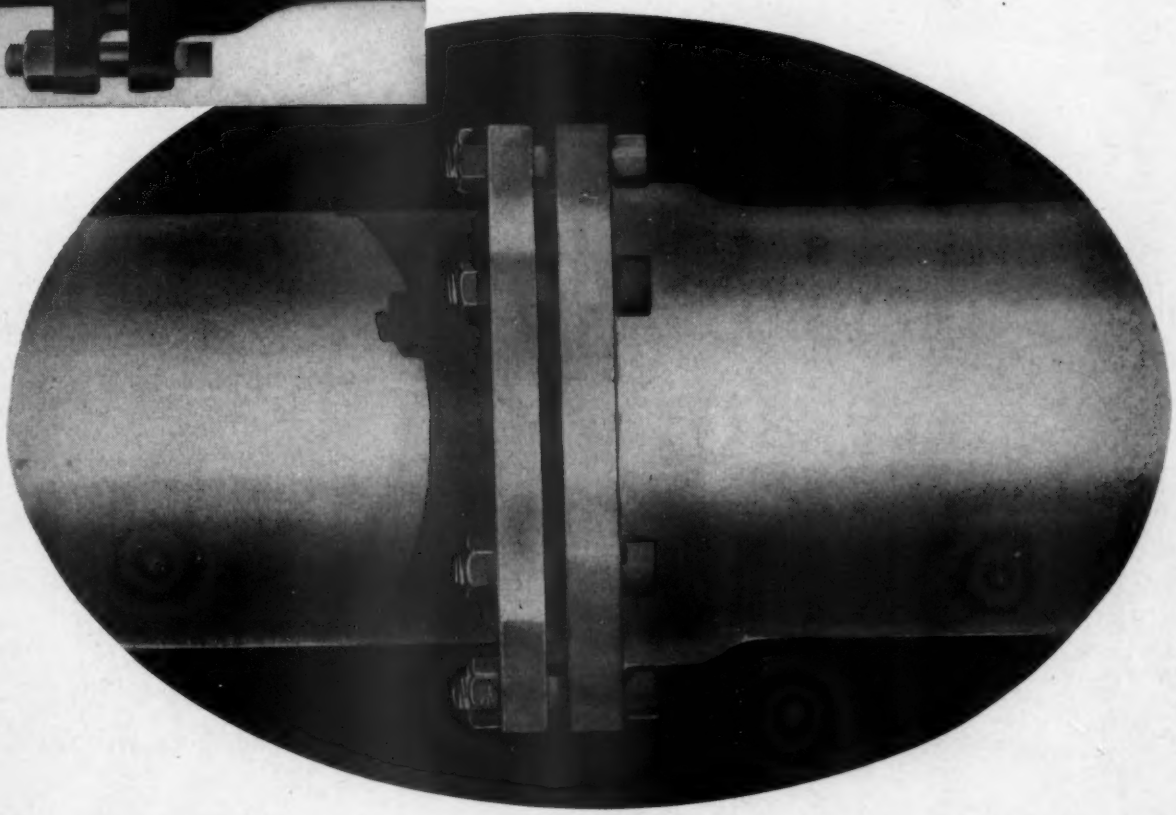
In Canada—Canadian Meter Co., Ltd., Hamilton, Ontario

G M E A N S P R E C I S I O N P E R F O R M A N C E

AMERICAN GAS JOURNAL, August, 1949. Vol. 171, No. 2. Published monthly by American Gas Journal, at 34 North Crystal St., East Stroudsburg, Pa., Executive and Editorial offices at 205 East 42nd Street, New York 17, N. Y. Entered as second class matter October 7, 1928, at the post office at East Stroudsburg, Pa., under the Act of March 3, 1879. Printed in U.S.A.

Long life and bottle-tight joints—that, in essence, is what the gas industry demands of pipe for distribution and feeder mains. The ability of standardized mechanical joint cast iron pipe to give bottle-tight performance with all types of gas, at intermediate and high pressures, has been well confirmed over the past 25 years. The ability of bell-and-spigot cast iron pipe to deliver a century or more of useful life has been proved by the service records of veteran gas mains, such as the one shown at left, laid in Philadelphia 113 years ago and still in service. Therefore, the ability of standardized mechanical joint cast iron pipe to deliver long-lived and bottle-tight performance is not open to question—it is a matter of record.





Long life and bottle-tight joints—plus time-saving and other economies in laying—plus interchangeable accessories and fittings—are the reasons why important gas utilities are standardizing on standardized mechanical joint cast iron pipe for new mains. Cast Iron Pipe Research Assn., T. F. Wolfe, Engr., People's Gas Bldg., Chicago 3.

STANDARDIZE ON

CAST IRON

STANDARDIZED MECHANICAL JOINT

PIPE

FOR *Dependable Delivery*— OF DEPENDABLE GAS STORAGE CAPACITY

[redacted] GAS LIGHT COMPANY
240 MAIN STREET

December 31, 1948

E. E. Harvey
Vice President
Stacey Brothers Gas Construction Company
Cincinnati, Ohio

Dear Mr. Harvey:

It is with considerable personal satisfaction that I write you this letter concerning the [redacted] Foot Holder in our [redacted] Plant. I took considerable kidding from some manufacturers that it would be impossible for you to meet the schedules quoted at the time we signed the contract. That you were able to do so must be equally satisfying to you.

The Holder was in service December 23, 1948 and on December 25, 1948, Christmas day we had an all time peak send-out. This is almost as close timing as we had on the Relief Holder in [redacted].

Your Mr. William H. McDaniels, did an outstanding job as you must know he would. Our people were very much impressed with his ability and the results certainly proved this.

Please pass along to Al Auer our thanks and to you, again.

Best regards for the New Year.

Very truly yours,

[redacted]
Vice-President

[redacted]

Another 3,000,000 Cubic Foot STACEY BROTHERS All-Welded Panel Wet-Seal Gas Holder

The letter speaks for itself—an actual, unsolicited testimonial of Stacey Brothers *service.*

Ability to meet contract delivery dates comes only as a result of long years of design, fabrication and erection experience—and we've had more of it than any other supplier.

Since we first introduced our patented All-Welded Panel design, we've built more than 100,000,000 cubic feet of holder capacity—78 holders over 100,000 cubic feet in size, including the world's largest (10,000,000 cubic feet)—and a whole host of smaller ones.

The service you get from a Stacey Brothers holder doesn't stop when the contract erection date has been met—it *starts* then. All-welded construction gives longer life, greater freedom from rust, fewer repairs, lower maintenance costs, less down time. Prove it to yourself by inspecting a Stacey Brothers holder installation—there's one near you. May we give you the name and location?

STACEY BROTHERS GAS CONSTRUCTION CO.
One of the Dresser Industries
5535 VINE STREET • CINCINNATI 16, OHIO

For an interesting illustrated 50-page catalog on Stacey Brothers Patented, All-Welded Panel-Type Holders, write for Bulletin W-45.

Stacey Brothers
ALL-WELDED GAS HOLDERS

AMERICAN Gas Journal
ESTABLISHED 1859

VOLUME 171 AUGUST 1949 NUMBER 2

This month...

Observation over a period of years has shown us that the way to get a quick rise out of the reading public is to print something that somebody disagrees with. Carl H. Dean's article in July on appliance venting showed at least that industry opinion is not 100 per cent in accord with his views. So far no one has challenged his facts . . . The big difference of opinion seems to be how the available research data on venting should be used. Mr. Dean believes national and local codes should be promulgated and rigidly enforced . . . Others say that an educational campaign on moisture control would accomplish the desired result—adequate venting—without unduly alarming the consuming public over the dangers of carbon monoxide. Mr. Dean continues his series on the subject this month (page 17) and we will see what other opinions the mails bring in.

The hottest July 19th since the Blizzard of '88, or some similar meteorological milestone, turned out to be the day AMERICAN GAS JOURNAL moved uptown to its new offices at 205 East 42nd street. Any of our readers in their 91st year will appreciate that the accumulation of odds and ends over four score and ten years can bulk into quite a mountain of impedimenta . . . We brought along everything that we thought would be useful, including all tax receipts . . . left behind some old furniture, rubber bands that had no stretch left in them and quite a few inelastic ideas that we appraised as being no longer applicable to the gas industry of 1949 et seq.

We probably won't hold a housewarming . . . it's too hard to get the white rings off the desk tops. But we are always glad to see visitors. Company makes a good excuse to gather the papers into a pile and lean back and relax. Always under the conspirational assumption that we are really talking business, of course.

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Elliott Taylor • Editor

AMERICAN GAS JOURNAL, established 1859, is published monthly by American Gas Journal, Inc., 205 East 42 St., New York 17, N. Y. E. HOLLEY POE, President and Treasurer; ELLIOTT TAYLOR, VICE-PRESIDENT; LEWIS V. HOHL, Vice-President; M. E. KELLEHER, Secretary and Assistant Treasurer.

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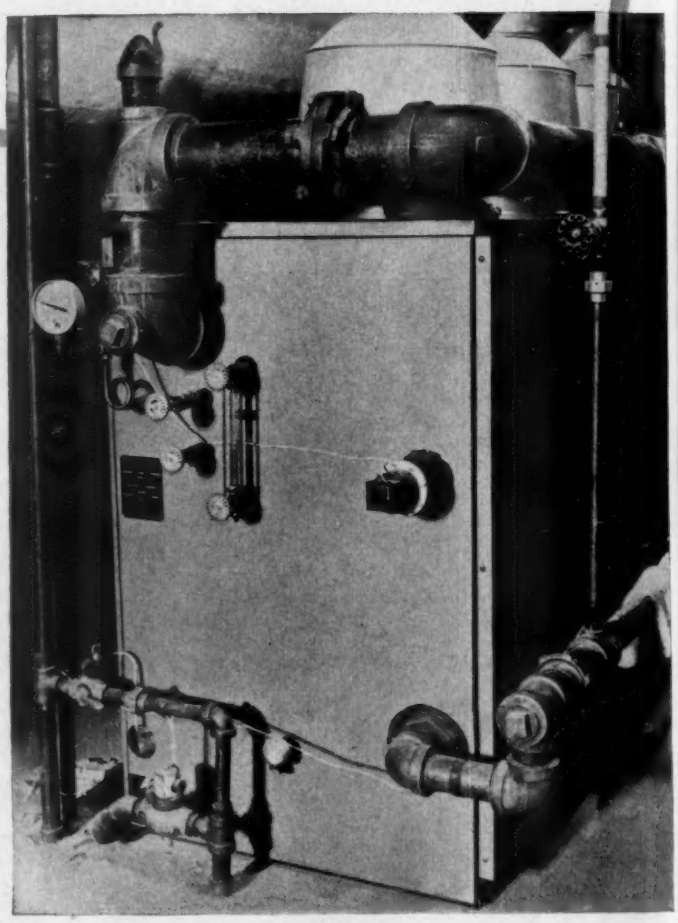
Peak Performance

.. TWO MILES ABOVE SEA LEVEL



Here's what we believe may be the highest installation of a gas-fired boiler in the world.

It's another outstanding demonstration of the manner in which Bryant equipment takes hold in a difficult or unusual application. The owner of this Rocky Mountain resort, *Skier's Inn,* 11,315 feet above sea level, reports that this LP-Gas-fired Bryant Model 443 Boiler operates perfectly while providing comfort for the thousands of visitors to the Inn . . . that it is *saving its cost* over the operating costs of his previous heating system.

You can be sure of this: No matter what the requirements of your heating job, there's a Bryant Boiler (36 different sizes for hot water, steam or vapor) to fit your particular needs. See your Bryant Distributor for complete details.

SKIER'S INN, above Berthoud Pass, Colorado (elevation 11,315 feet), is a three-story building heated by a Bryant Model 13-S-443 Boiler. Installation was made by Bell Plumbing & Heating Company, Denver, Colorado.

Let the pup be furnace man . . . and water boy, too!

bryant

AUTOMATIC HEATING

BRYANT HEATER DIVISION

Affiliated Gas Equipment, Inc.

Cleveland, Ohio • Tyler, Texas

THE MOST COMPLETE LINE OF GAS HEATING EQUIPMENT IN THE NATION

Editorial:

Push the Doorbell Pushers

THERE is a suspicion growing in many quarters, and one that we share, that a prime reason for the present slump in retail lines is that salesmen aren't ringing enough doorbells. And we aren't just talking about the little guys with bunions and an order book when we say salesmen. We mean all of the vice-presidents in charge of sales and promotion, and all of the other brass who are supposed to plan and direct and inspire the brigade who sally forth every morning with their eighteen pound briefcases and the grocery bill to meet.

Along about the fall of 1944 and the spring of 1945 we were flooded with the post war plans of individual manufacturers, and of whole industries, in which they told the world and reassured themselves that the competition would be terrific, but they were determined to bring in the business—regardless.

A lot of the gaudy plans never got beyond the four-color brochure stage, for the simple reason that they weren't needed. They were all based on the common misapprehension that the end of the war would bring about an immediate buyers market; and it didn't turn out that way. Instead the problem was one of spreading out the available goods where they were needed most, and trying to keep the buyers who couldn't buy from getting too mad about it. That was when the manufacturers looked as smug as a cat with a bellyfull of goldfish, as they talked about their backlogs of one, or two, or more years of unfilled orders.

Now the buyers market is back, and probably it is here to stay. But it isn't any worse now, in 1949, than it was expected to be in 1946. In fact, according to Dun and Bradstreet the national disposal income is at an all time high of $197 billion. Certainly the gas industry should take an aggressive crack at its share of the tremendous reserve of potential purchasing power.

As far as it has gone, the Court of Flame campaign sponsored by the Gas Appliance Manufacturers Association, is showing what can be done with an aggressive promotion plan that supplies sales ammunition and selling incentives for retail appliance salesmen working for dealers and utilities. When the plan was launched last January, automatic water heater sales were over 32 per cent below shipments for January 1948. By the end of May, shipments for that month were up to within one per cent of those for May a year ago. And during June they were just about parallel. No other major household appliance that we know of can make that boast. And if it wasn't the result of the Court of Flame campaign, all we can ask is: What was it?

There is every reason to hope that the Old Stove Roundup, now being organized by the AGA for September and October, can be made to show similar good results. AGA says there are six million gas ranges in use that are over 15 years old. The very existence of so many of these old appliances is a serious and continuing threat to gas cooking. Homes using obsolete gas ranges are the greatest potential customers for new electric ranges.

Gas utility operating revenues are all up, some very substantially over those of a year ago. There is an obligation on the part of the gas companies to increase their new business expense at least proportionately.

There is in a need for more doorbell pushers, we admit; but there is a much greater need right now for more push behind the doorbell pushers.

Let Leland Go

THE bare possibility that the nomination of Leland S. Olds for reappointment to the Federal Power Commission may meet with organized opposition in the Senate interstate commerce committee is a cheering piece of scuttlebutt. If his confirmation is held up until after adjournment there is at least a chance for the grassroots opposition to this untempered radical to become vocal.

Certainly any member of the gas industry who is on speaking terms with his senator should regard it as his personal assignment to acquaint the legislator with the Olds record. A former feature writer for the *Daily Worker*, coeditor of the Federated Press when Earl Browder was on its executive board, appointed to the FPC in 1939 as a sop to the American Labor Party's dubious public service in behalf of the Roosevelt candidacy, Olds has been the center and source of more disharmony between government and the gas industry than any single individual.

An Educational Masterpiece

EVERY public relations expert in the gas industry who wants to enhance his knowledge of the art and science of which he is a proud practitioner should get a copy of a new illustrated book entitled *Steel Making in America*, written by Douglas A. Fisher for the United States Steel Corporation. The book is being sent to schools, colleges, libraries and writers throughout the country.

Steel Making in America describes in simple language the history of iron and steel from early times through to present day manufacturing processes, from iron ore to finished products of every sort. Its 100 pages are neither advertising nor propaganda for either the sponsoring company or the steel industry. It is because it was not written as a propaganda piece that it is so valuable from a public relations standpoint.

Ever since the old days when the Federal Trade Commission investigated the propaganda activities of the National Electric Light Association, the whole utility industry has shied away from addressing educational material directly to the schools. Yet there is a fascinating factual story on natural gas alone, that awaits only the proper telling.

Elliott Taylor

New Report Shows Louisiana Leading in Undedicated Gas Reserves

Staff Written

Foreword

Alexander Crowell

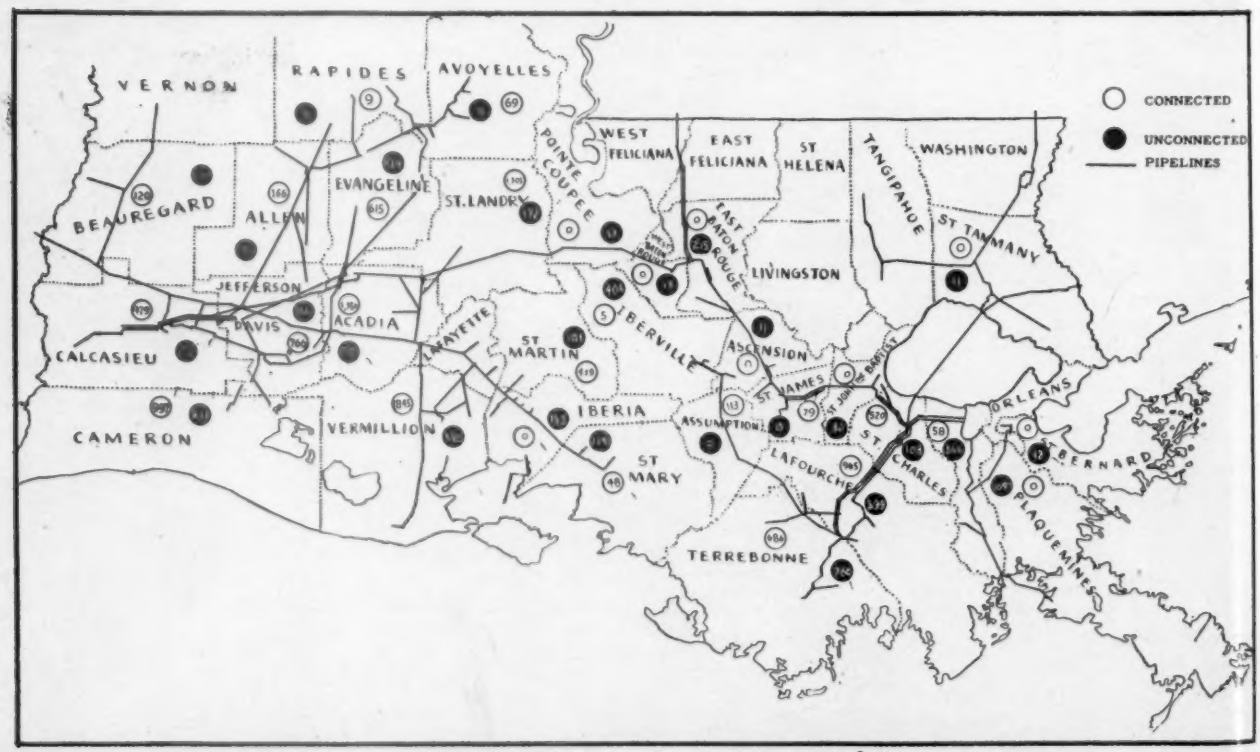
Over the past eighteen months a group of natural gas engineers under the direction of Alexander Crowell, oil and gas consultant of Shreveport and New Orleans, has made a reserves and availability study of natural gas in Coastal and Southern Louisiana. After an exhaustive study of the 31 parishes in the area, pool by pool and field by field, in which virtually every owner, producer, transporter and processor of natural gas was called upon to furnish data to corroborate the field studies, a preliminary report was released under date of July 13, 1949.

This copyrighted material has been made available to AMERICAN GAS JOURNAL, *for use in the preparation of this staff-written article. In its preparation the data of the report have been accepted as completely authentic, and representing the best and most complete study of the producing area now available. To the extent that editorial conclusions may appear to have been drawn, they represent the opinions of the staff of* AMERICAN GAS JOURNAL, *rather than the findings of the engineers.*

SOUTHERN and Coastal Louisiana has moved into the number one position as the nation's greatest reserve of natural gas, from the standpoint of proved drilled reserves and gas available for sale to new customers, according to a report prepared by Alexander M. Crowell for the law firm of Chill, Landman and Gordon, Washington. D. C. and Jackson, Mississippi, in behalf of undisclosed clients.

Most of the nation's reserves of natural gas are in a block of six states, Texas, New Mexico, Oklahoma, Kansas, Louisiana and Mississippi. The three greatest reserves areas are: The Hugoton field of 2,000,000 acres in Kansas, Oklahoma and Texas; the Panhandle field of 1,500,000 acres in North Texas; and the Carthage field of 215,000 acres in East Texas.

The report contends, however, that Southern and Coastal Louisiana, with only a little more than 200,000 acres proved and producing, has a reserve



On this map (copyright July, 1949) the figures in the circles are billions of standard cf.

Photographs of Louisiana field, the Delta, and off-shore drilling are by R. I. Nesmith, courtesy The Texas Company.

equal to the Hugoton or the Panhandle, and four times that of the Carthage field.

The study finds that despite the great number of long distance pipe lines now operating, under construction or being planned, Southern Louisiana has not had its proportionate share of the long distance gas transmission lines so necessary to in-

ent reserve estimate can be doubled, and production without waste increased to two billion standard cubic feet of gas daily.

The average gas-type well has a producing depth of about 9,000 feet below sea-level, normal depth pressure and temperature, separation of gas from water and condensate above 750 psig, cost from $100 thousand to $500

thousand to drill and complete; and has a reserve of about 22 billion standard cu. ft. of gas, recoverable to 100 psig.

On a 640 acre drainage basis, the average per acre gross reserve is about 34 million standard cu. ft., on a 15.025 pressure base measurement . . . as required by the state for reporting purposes. Deducting 10 per cent for the sale pressure base measurement of 16.7, another 10 per cent for the deviation from Boyles Law of Perfect Gases at 750 psig, still another 20 per cent for taxes, and 12.5 per cent for the landowners' royalty, leaves a net of about 13 million standard cu. ft. . . . that is 62.5 per cent in deducts.

There are about 64 barrels of condensate or distillate produced with each million cu. ft. of gas produced. There is no fixed price for gas or condensate, taking the area as a whole.

Sixty-five oil and gas operators control the reserves of Southern and Coastal Louisiana; out of which seven companies own or control 67 per cent of the merchantable gas that is presently without a market or gas purchase agreement.

There are at present only two major interstate pipe lines operating in the area, the report states—United Gas Pipe Line Company and Interstate Natural Gas Company. Two others, Transcontinental Gas Pipe Line Corp. and Trunkline Gas Supply Co., have

(Continued on page 40)

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In the opinion of geologists, with proper development offshore, the pres-

TOTAL available 5,345

***Approximately 339 billion cu. ft. of Magnolia Petroleum Company's reserves have been bought by United Gas Pipe Line Co. since the date of the report.**

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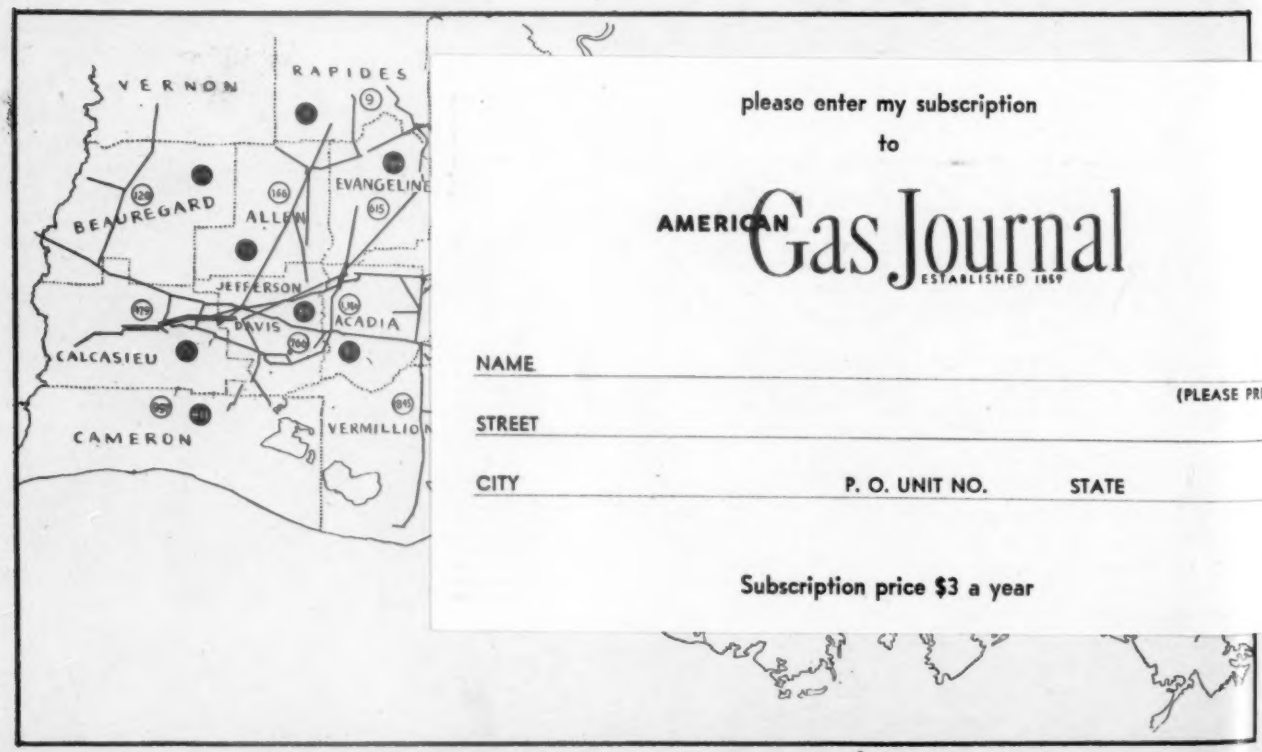

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The study finds that despite the great number of long distance pipe lines now operating, under construction or being planned, Southern Louisiana has not had its proportionate share of the long distance gas transmission lines so necessary to insure full development of potential gas areas. The result has been that more than half of the gas-type wells are presently closed to production for want of a market.

It is shown that in that area, on land and offshore, gas producible under present operating practices is in amounts between 20 trillion and 40 trillion standard cu. ft., depending on whether 320 or 640 acres is regarded as the effective drainage area for a single average gas type well. The spacing rule in effect now as promulgated by the Commissioner of Conservation is 640 acres per well.

As of July 1, 1949, there were 656 gas-type wells in 249 pools. More than half of these wells were then closed to production awaiting a market, and in 51 of the 179 fields so closed, shut-in wells are offset by producing wells. At the present rate of production, 500 million cu. ft. daily, there is a gas supply in sight for from 40 to 80 years.

In the opinion of geologists, with proper development offshore, the present reserve estimate can be doubled, and production without waste increased to two billion standard cubic feet of gas daily.

The average gas-type well has a producing depth of about 9,000 feet below sea-level, normal depth pressure and temperature, separation of gas from water and condensate above 750 psig, cost from $100 thousand to $500 thousand to drill and complete; and has a reserve of about 22 billion standard cu. ft. of gas, recoverable to 100 psig.

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(Continued on page 40)

TABLE A

Control of gas in Southern Louisiana not under contract in billions of standard cu. ft., as of July 1, 1949:

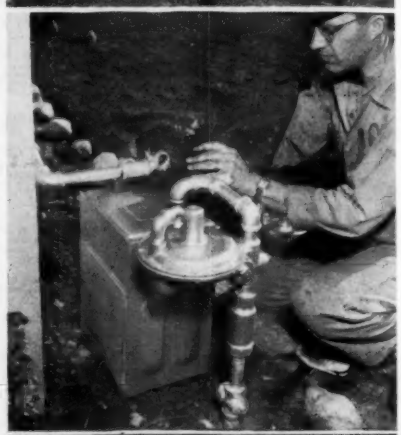
Company	Billions Scf not sold
Texas Co.	3,600
Superior Oil Co.	900
Magnolia Petroleum Co.	620*
Gulf Oil Co.	610
Stanolind Co.	400
Shell Petroleum Co.	250
Continental Oil Co.	130
Total controlled by seven principals	6,510
Fifty eight minor producers	2,833
TOTAL available	9,343

*Approximately 339 billion cu. ft. of Magnolia Petroleum Company's reserves have been bought by United Gas Pipe Line Co. since the date of the report.

1—Serviceman arrives on the job, checks the meter number.

5—The gas enters the manifold, passes through a regulator, flows from the regulator outlet into the rubber bag. A second line runs from the feed side of the regulator to a manometer which registers the outlet pressure so that the change can be made without shutting off appliances.

2—Meter is timed to make sure that load does not exceed the 75 cu. ft. per hour maximum.

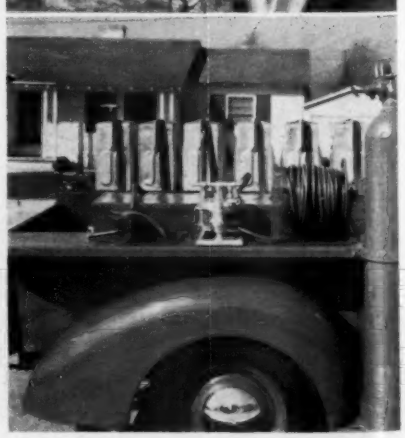


6—The serviceman will remove the loosened plug from the tee and allow gas to bleed for a few seconds to remove air from the rubber bag. By inserting the rubber extension plug into the nipple, he connects the house line to the gas supply on his truck.

3—The serviceman loosens the outlet plug. Note tee in line with house piping which permits use of the rubber bag.

7—Holding the rubber expansion plug in place with his right hand, the serviceman uses wrench in left hand to shut off the gas supply to the meter assembly.

4—A turn of valve on the regulator permits gas to flow at 20 psig. from high pressure tank through the pressure welding hose to the meter changing device assembly.



8—Closeup of the service truck: At right the high pressure tank, then the coil of high pressure welding hose, next the regulator and manometer set-up, and to the left, the rubber bag with the tube, elbow, and expandable rubber plug.

'Hollywood' Technique Shows California Method of Changing Meters

Meters Changed without Interrupting Gas Flow to Appliances

by Arthur Rohman

THE Southern Counties Gas Company, which serves an extended territory in the Southern California area, makes approximately 30,000 old-age meter changes during an average year. Before the war, these routine meter changes were made in the conventional way by getting in touch with the customer and turning off all appliances before any work was done.

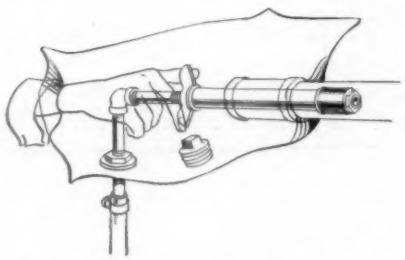
However, after war was declared and entire families became involved in various phases of the war effort, it became increasingly difficult to make these required meter changes, because of not being able to find people at home. In an effort to overcome this problem, experiments were conducted to develop a device which would permit the changing of a meter without interrupting gas flow to the customer's appliances.

After some preliminary experiments and tests, a device was perfected which would allow the majority of meters and regulators on Southern Counties lines to be changed without seeing the customer or shutting off the appliances. Subsequent use of the device has shown that considerable savings in time and mileage are effected over the conventional method. Callbacks are eliminated. There is no need to get in touch with the customer which, in many cases, is time-consuming. Appliances need not be turned off and relighted, eliminating extra service work.

The equipment used to operate the meter changing device is shown in photographs 4, 8 and 9. The cost of this equipment is approximately $250.00, including a $75.00 labor cost for fabricating and assembling the equipment.

A high pressure tank, containing natural gas stored at 2,000 psig is mounted in a position on the service truck so that it can be easily changed when empty. A high pressure shut-off valve and regulator assembly are connected to the outlet of the tank with the regulator normally set to deliver a pressure of 20 psig.

A 100-foot coil of high pressure welding hose attached to the outlet of the regulator is carried on a reel on the truck for convenience in handling. Field experience has shown that 100 feet of hose is sufficient to reach meter sets in suburban homes which are set back a considerable distance from roads or driveways.



Rubber bag made from a piece of tire inner tubing forms a gas-tight compartment around the serviceman's arm and hand while he attaches the gas supply from tank on truck to the houseline. The rubber bag is removed after the connection has been made gas-tight by adjusting a wing nut which expands a rubber plug inside the houseline.

A manifold made of ¾-inch pipe and formed into a rectangular shape (See photographs 5 and 9) serves as a base support for the temporary domestic regular and manometer. The hose from the tank is connected to this manifold through a ¼-inch flat-head cock.

A Reliance ¾-inch Type "K" domestic regulator mounted directly on the rectangular manifold reduces the hose and manifold pressure of 20 psig to 9.0 inch wc (1/3 psig) houseline pressure. A 12-inch manometer (water column), mounted in a fixed position on the rectangular manifold, is used to check the outlet pressure of the "K" regulator.

A rubber bag made from a piece of tire inner tubing forms a gastight compartment around the serviceman's arm and hand while he is attaching the gas supply line from the tank to the houseline. (See photographs 5, 6, and 7.) Gas is fed from the "K" regulator outlet to the bag through approximately four feet of ½-inch air hose. The bag has two holes cut out near each end, one for enclosing the bag over the end of the houseline tee and the other for insertion of the serviceman's hand.

Actual connection of the auxiliary gas supply is made by means of an expandable rubber plug. (See drawing). This rubber plug has a hole drilled through it and is connected to the gas supply by ¼-inch fittings. After being inserted into the houseline, the plug is expanded by screwing in on the wing nut.

Operating Procedure

The procedure for using the meter changing device, which is relatively simple, may be followed in the photographs 1 through 8 on the adjoining page.

When the serviceman arrives on the premises, he first checks the meter number to compare it with the one on his order. The outlet of the meter is checked for a tee. One requisite for use of the device is a plugged tee running with the houseline. (Photograph 3.) Next, the gas flow through the meter is timed to ascertain that the load is not excessive. After this preliminary survey of the meter set, the serviceman returns to the truck.

Back at the truck, the tank valve is opened and the high pressure regulator is set to deliver 20 psig. The serviceman unlocks the hose spool, picks up the manifold-bag assembly in one hand, takes the tool kit in his other hand, and starts for the meter set. The hose unwinds from the spool as he walks along. A return trip is then made to the truck for a new meter and regulator.

At the meter set, the serviceman checks the meter test hand for any large load that might have come on since the initial flow timing. Next, the plug in the meter outlet tee is loosened to hand tightness. The ¼-inch inlet flat-head cock on the manifold is turned on and air is purged from the bag through the openings. At the same time, the outlet pressure on the "K" regulator is checked by means of the manometer.

After a check for correct pressure, the serviceman inserts his right hand into the bag and, since all air has by now been purged from the hose

and bag, the bag is fitted over tne outlet tee. The bag will now fill up with gas, and the plug in the outlet tee may be removed. Next, the expandable plug is inserted through the tee and into the houseline, where it is expanded by screwing up on the wing nut. (See drawing.)

After testing the tightness of the expanded plug in the houseline, the serviceman now slowly shuts off the gas supply to the meter assembly. If the pressure on the manometer remains constant, this is an indication that the plug is in place and that the pressure into the housepiping is being maintained. After the pressure check, the service is completely shut off and he removes his right hand from the bag and proceeds with the work of making the meter change.

Before connecting the outlet of the newly installed meter, a pressure control fitting is installed on the meter outlet screw tube, and the pressure of the regulator is checked under both "lock-up" and "load" conditions. The meter is then connected, and air is bled from the new meter assembly through the hand opening in the bag. Following this, with the right hand again in the bag, the expandable plug is removed from the houseline and the cast iron plug replaced in the tee. The job is completed by soap-testing and painting the entire meter set.

Field Experience Observations

From experience in using this device, the following observations have been noted:

1. "No-load" outlet pressure of the "K" regulator should be 9.0 in. or 10.0 wc.
2. The delivery pressure to houseline and load should not go below 4.0 in. wc on the manometer. If pressure drops below 4.0 in., the serviceman is instructed to check all pilots.
3. The tee through which the meter assembly is by-passed must be in line with the housepiping and unobstructed. Pipe which has not been reamed or a street ell in the end of the tee will not allow the expansion plug to fit properly.
4. The rubber plug must be clean.
5. The rubber bag should be held on the tee with the left hand while the expansion plug is being worked in and out.
6. Separate rubber bags with 1 in. and 1¼-in. expansion plugs are needed for use on curb vault assemblies and larger meters.

During the initial experiments with the device, a number of test runs were conducted to test the capacity and reliability of the device. An example of one such test is as follows:

A house was selected with a maximum load of 155 cu. ft. per hour. Piping consisted of 60 feet of 1-in. yard line and 40 feet of ¾-in. house line. Appliances served were a range, two floor furnaces, a water heater, and a six cubic foot gas refrigerator. All appliances were equipped with safety pilots. While the meter was being changed, different situations or conditions were tried, but the operation of the appliances was not appreciably affected. No pilots were extinguished, and no safety valve closed. The minimum pressure delivered in the house during the change and under full load of 155 cu. ft. per hour was 4.1 in. wc.

Although the device has been checked on a 225 cu. ft. per hour load, it is not used in the field where the load exceeds 75 cu. ft. per hour. The average load actually observed is approximately five cu. ft. per hour. A full tank of natural gas at 2000 psig will deliver 220 standard cu. ft. of gas at 9.0 in. WC. Experience has shown that this volume of gas is adequate for about 75 meter changes under normal conditions.

The meter changing device has been used with great success throughout the Southern Counties system for a little more than five years. During this time, the few failures recorded were those caused by human error.

Cuthrell and Hulcy Are Nominated to Head AGA for Coming Year

H. H. Cuthrell

D. A. Hulcy

THE General Nominating Committee of the American Gas Association has nominated thirty-three industry executives to guide the operations of the Association for the 1949-50 fiscal year, H. Carl Wolf, managing director, announced on July 20. The committee's nominations will be submitted to the membership for election at the annual convention in Chicago, October 17-20.

Hugh H. Cuthrell, vice-president, The Brooklyn Union Gas Co., Brooklyn, N. Y., has been nominated for president; D. A. Hulcy, president, Lone Star Gas Co., Dallas, Tex., for first vice-president; George F. Mitchell, president, The Peoples Gas Light & Coke Co., Chicago, Ill., for second vice-president, and Edward F. Barrett, president, Long Island Lighting Co., for re-election as treasurer.

Slated for directors for a two year term are:

Edward G. Boyer, Philadelphia; H. R. Cook, Jr., Baltimore; E. H. Eacker, Boston; Joseph N. Greene, Birmingham; Stanley H. Hobson, Rockford; R. H. Lewis, Pittsburgh; Frederick A. Lydecker, Newark; J. F. Merriam, Omaha; Dean H. Mitchell, Hammond; James S. Moulton, San Francisco; J. French Robinson, Cleveland; Paul R. Taylor, New York; Thomas Weir, Ontario; Harry K. Wrench, Minneapolis; C. H. Zachry, Dallas. Charles G. Young, Springfield, has been nominated to fill vacancy in term expiring October, 1950.

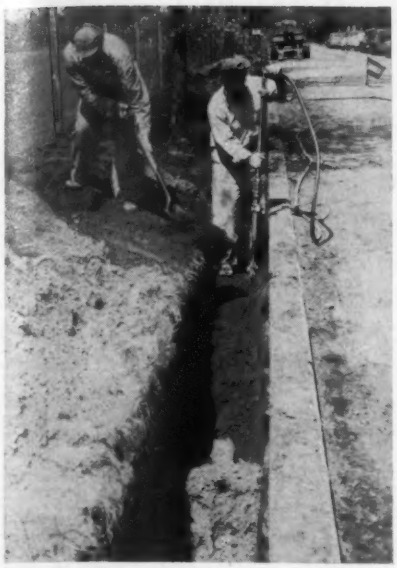
Other nominations are as follows:

Laboratories' Managing Committee: Arthur F. Bridge, Los Angeles, chairman, and C. E. Bennett, Pittsburgh, vice-chairman; Accounting Section: John H. W. Roper, Washington, D. C., chairman, and Alan A. Cullman, New York, vice-chairman; Industrial and Commercial Gas Section, D. W. Reeves, Tulsa, chairman, and Carl H. Lekberg, Hammond, vice-chairman; Manufacturers' Section: Carl A. Schlegel, Philadelphia, chairman; Publicity and Advertising Committee: R. G. Barnett, Portland, chairman, and C. J. Allen, Waterbury, vice-chairman; Residential Gas Section: H. Preston Morehouse, Newark, chairman, and C. H. Horne, Birmingham, vice-chairman; Technical Section: Ernest G. Campbell, Chicago, chairman, and R. Van Vliet, Stapleton, Staten Island, vice-chairman.

Governor Jester, of Texas, Dies Suddenly

Gov. Beauford H. Jester, of Texas, 56, leader in the fight to assure rights of the tidelands for the states, and one of the leading opponents to federal encroachment in the oil industry, died July 10 in Houston.

He was a member of the Texas Railroad Commission, and at one time served as that body's chairman. A native of Corsicana, Tex., the governor was widely known in the oil industry. He fostered a number of important oil and gas industry bills in the Texas Legislature which were passed recently.



A—Public Service Co. of Northern Illinois workmen complete backfill on short service run in Chicago suburb. This job was completed late in the summer of '48.

B—Approximately same location as A taken early in the summer of '49. Although parkway adjoins golf course, care was still exercised in completing project.

C—A thoroughfare in Oak Park, Ill., as construction work was in progress on a new 30" gas main last fall. Page 16 has the companion picture when work was finished.

Consideration of Community Aesthetics Enhances Public Relations

THE Public Service Company of Northern Illinois' long-practiced emphasis on good public relations is paying dividends these days, and it's the general result of always playing fair with its customers.

Among the many examples of good customer relations, the most recent occurred in the company's western division, comprising a number of better grade residential and industrial suburbs directly west of Chicago, where employes are now busy converting the area from mixed to natural gas.

Construction of a new 30-inch feeder main was made necessary to reinforce the present system in the suburban area before the natural gas supply could be properly supplied and the first section of the main—about a mile in length—was laid in Oak Park.

This feeder main of mechanical joint cast iron pipe operates at a pressure of five to ten pounds, depending upon local conditions. This pressure is reduced to six inches of water for distribution to customers.

As is the procedure in all such jobs, permission first was obtained from the village after which company representatives personally called on all customers along the route of the proposed project to explain the plan. Each customer was assured that any inconveniences would be minimized and all property along the route would be protected.

These provisions were "musts" in the contractor's contract with the company.

The actual job itself was scheduled so that only a small amount of pipe was strung out in the street at a time and this was usually sufficient for one day's work. Furthermore, the pipe was placed in the street gutter and not on the lawns or parkways.

Pipe and fittings were carted from the freight car or from the company's storage yard as needed, and the pipe was laid about eight feet from the edge of the pavement.

Sand and limestone screenings were used as backfill material on all the streets and the trench spoil was immediately hauled way. This was a continuous operation so closely timed with the pipe-laying crew that often there would be only 50 feet of trench open at a time.

Backfill material was puddled around and under the pipe, using a fire hose to give the pipe a good foundation and to settle the trench backfill rapidly so the street would be suitable for traffic.

Then came the little "oomph" touch to the company's public relations program. Rather than level and apply permanent asphalt top dressing which might settle during the approaching winter, a temporary surfacing job was completed—and it was publicly explained that when the settling was over in the spring, the company would remove and replace this with permanent top dressing.

Handling Water Shut Offs

Another example of public relations follow-through occurred during this same job when it was necessary to cut water service as the work progressed. Village officials and property owners were notified in advance—and the contractor had suitable craftsmen on hand at all times to keep these service interruptions at a minimum. As a result, all householders were forewarned, water shut offs were held to an hour or less, and no one was inconvenienced.

What about short service runs? There's no public relations distinction between jobs, be they large or small. Special care is exercised in laying pipe in parkways, front or back lawns . . . and tree roots are guarded with extreme care! Lawns are "skinned" be-

(Continued on page 16)

More Economical Operations in Sight for New York Utilities

by John F. Falvey

John F. Falvey

COMBINED operating costs savings of around $7,500,000 to $8,000,000 annually are in store for utilities in the Metropolitan New York area starting in August, 1950.

The occasion will be delivery at that time of a substantial volume of natural gas from Louisiana fields by Transcontinental Gas Pipe Line Corp., which has been making faster than anticipated progress in laying its big line.

Through use of the natural gas the utilities will be able to lessen considerably their present heavy dependence on fuel oil to raise the Btu heat content of their product. The magnitude of the cut-back of fuel oil in prospect is indicated in exhibits filed by the various companies with the Federal Power Commission. These show that in the New York area the utilities will cut down by 390,000,000 gallons, or 9,300,000 barrels, their use of heavy residual oil in the first year of operations under natural gas.

In an exhibit filed recently with FPC, Consolidated Edison Co., of New York, Inc., estimates that it would save $3,018,000 annually in 1950, based on material prices prevailing on May 18, 1949, by purchasing 100,000,000 cu. ft. of natural gas a day at 80 per cent annual load factor.

Brooklyn Union Gas Co. on the basis of labor and material prices prevailing on April 14, last, estimated that it would have $2,989,956 in the first year of operation after natural gas introduction.

Long Island Lighting Co. System savings probably will range between $900,000 and $1,000,000 a yar.

Kings County Lighting Co., former Long Island Lighting Co. subsidiary serving gas in a portion of Brooklyn, currently places its savings at $372,631 annually on an estimated annual use of 4½ billion cubic feet of gas on th basis of prices as of May 23, 1949, for materials going into gas manufacture.

After allowing for Federal income taxes at the present 38 per cent rate these savings would mean additional earnings of $1,871,000 a year for Consolidated Edison. This would be a 5 per cent increase in the Consolidated System's earnings for the 12 months ended June 30, or 16 cents for each of the 11,477,287 common shares which the company has outstanding.

For Brooklyn Union it would mean a tremendous jump of $1,852,773 or an amount of approximately 60 per cent over the net income of $3,075,800 earned for the June 12 months. The increase would be approximately $2.50 a share on the 745,364 capital shares which the company has outstanding.

Stimulus to the Long Island Lighting Company System net earnings, after Federal taxes, would be from around $550,000 to $600,000 a year, or another 16 or 18 per cent tacked on to the 80 per cent increase in year to year net earnings just reported by the System for the 12 months ended June 30.

Savings to other and smaller New York utilities also will be substantial in relation to their present earning power.

Expect Rate Reductions

The operating economy to stem from use of natural gas in conjunction with the manufacturer gas facilities presumably will necessitate some sort of rate reduction. How much this might amount to is conjectural at the moment. But it was with an eye to the efficiencies of natural gas that the New York Public Service Commission in rate proceedings to date, has granted the manufactured gas companies relief solely on a temporary basis.

It seems safe to say that in this respect the New York utilities will be dealing with a far more realistic PSC than heretofore.

This is indicated by the Commission's approach to the problems experienced by Central Hudson Gas and Electric Corp. This company, which serves electric and gas to mid and upper Hudson Valley towns, expects to convert to services of direct natural gas by May, 1950.

Central Hudson is expected to have 10 years, or double the time heretofore granted in such cases, for amortizing gas for cities and converting the consumers' appliances and for eliminating other items from its balance sheet.

The New York Commission has now started an indicated "live and let live" policy, in meeting concessions made by utilities under its jurisdiction. In this respect it is emulating the SEC.

Sharp Change for Better in Brooklyn Union Gas Fortunes

Brooklyn Union Gas Co. has effected considerable improvement in its situation during the current year to date.

Aided by an increase of $1,631,510 in revenue, the company for the six months ended June 30 reported the equivalent of $3.01 for each of its 745,364 capital shares. This stood out in sharp contrast to the nominal earnings of 10 cents a share gleaned for the similar period in 1948.

The great improvement in the company's situation is traceable almost entirely to the $9,283,000 annually of rate increases which were obtained in four instalments from late 1947 through last January. The break-down of the income statement for the first half of this year indicates that the higher rates produced $2,610,000 of additional revenues, but the year to year gain was held below this level by the impact on space heating sales of unusually mild weather conditions which prevailed during most of last winter.

Reflecting the change for the better in the company's fortunes, directors as of September 1, next, are restoring the 40 cent dividend which was in effect

(Continued on page 26)

Index of Yields: Selected Utilities Stocks

The reduction in the yields obtainable on all groups of utility stocks in the July index, especially those in the gas industry, reflects improved conditions in the stock market as a whole.

From the low point reached in mid-June, the Dow-Jones average of selected stocks has followed a generally upward price trend.

Yields on new corporate bond issues now are the lowest in many months and for the first time since 1946 utility managements are giving consideration to refunding outstanding bonds with new issues, bearing lower interest rates.

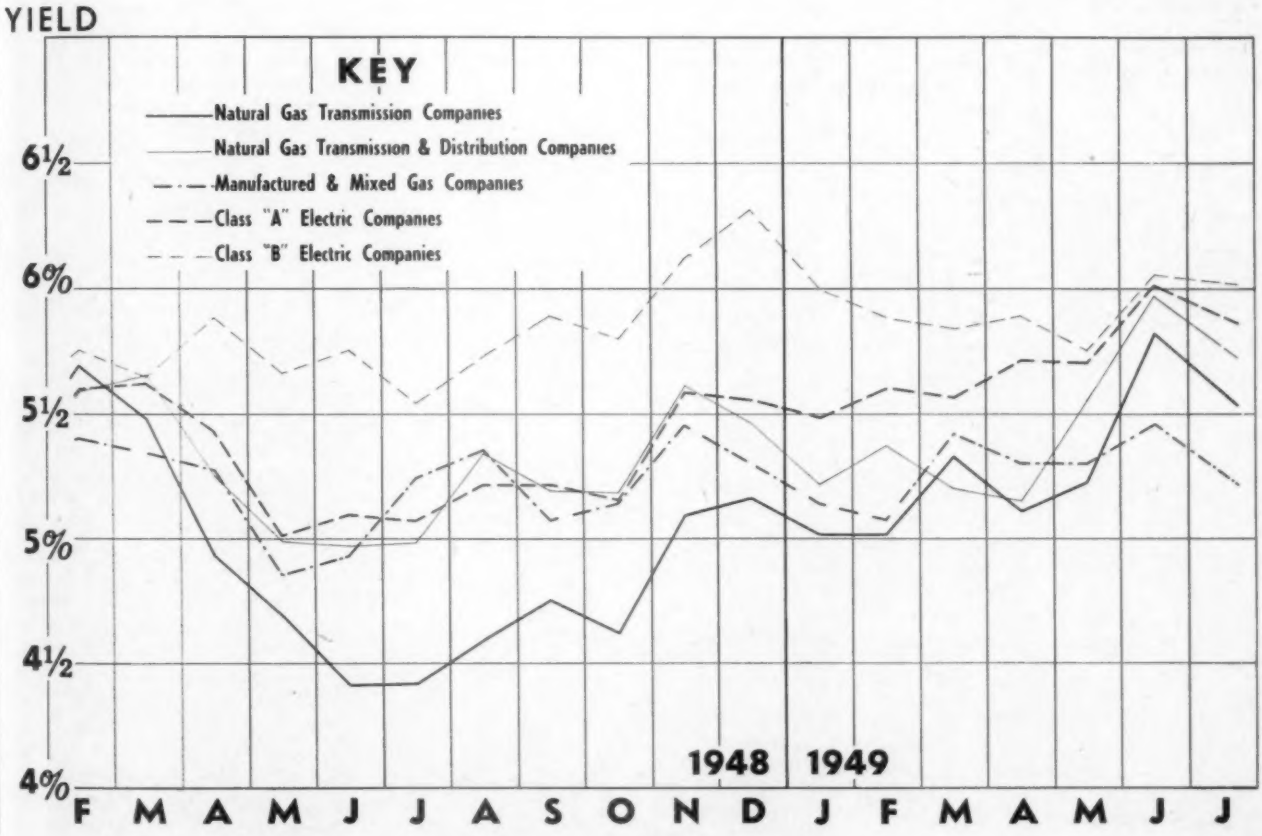
Whether the trend recently in evidence is to be continued for long poses a question to which two diametrically opposite answers may be given. Proof of this was afforded in a recent symposium conducted by the New York Society of Security Analysts. Of four outstanding observers who gave their opinion of market prospects, two looked for higher prices from this point forward and the other two looked for a reversal of the recent favorable trend.

Followers of either of these opposing view points can be found without difficulty in Wall Street and in other financial centers. Those favoring continuance of the recent rise point to the further bulge in personal savings and to the removal of credit restrictions as combining with the low ratio of stock prices to earnings. Those holding to the opposite view point stress the theory that domestic business conditions will not improve much, if any.

Earnings of the natural gas companies continue at a high level and general conditions in the industry appear to favor maintenance of dividend payments at their present level.

Conditions in the manufactured gas industry have improved under the dual benefit of higher rates for many companies and of the trend in 1949 to date towards lower costs of all material entering into the gas manufacture.

Economically the gas industry as a whole appears more soundly situated than at any time in recent years, but the trend of prices for stocks of the various companies in this industry cannot help but be affected by what transpires in other segments of the stock market.



Method of Compiling Index of Yields

This is a straight arithmetical index of comparative yields obtainable on a selected group of gas and electric utility industry common stocks.

The companies comprising this index have been selected by the AMERICAN GAS JOURNAL as providing a representative cross-section of each industry, from the standpoint of geographical diversification and of the relative importance of the individual companies in their areas.

No effort has been made to weigh the average to give effect to changes in capitalization or in dividend rates because the yields afforded on the issues reflect such changes. The index is designed to show the rate of return and not necessarily market movements of the stocks comprising it.

The companies used in compiling this index are:

Natural Gas Transmission Companies: El Paso Natural Gas Co.; Northern Natural Gas Co.; Panhandle Eastern Pipe Line Co.; Southern Natural Gas Co.; Tennessee Gas Transmission Co.

Natural Gas Transmission and Distribution Companies: Columbia Gas System, Inc.; Consolidated Natural Gas Co.; Lone Star Gas Co.; Oklahoma Natural Gas Co.; Pacific Lighting Corp.

Manufactured and Mixed Gas Companies: Bridgeport Gas Light Co.; Brooklyn Union Gas Co.; Laclede Gas Light Co.; Peoples Gas Light & Coke Co.

Class "A" Electric Companies: Boston Edison Co.; Commonwealth Edison Co.; Houston Lighting & Power Co.; Southern California Edison Co., Ltd.

Class "B" Electric Companies: Dayton Power & Light Co.; Hartford Electric Light Co.; Pennsylvania Power & Light Co.; Public Service Co. of Colorado; San Diego Gas & Electric Co.

D—Same street as picture C, page 13, early this summer after contractor had completed permanent top dressing. Temporary top dressing was laid last fall and fill was allowed to settle over winter.

(Continued from page 13)

fore digging the trench and when the work is completed, the turf is replaced so that few traces of labor remain. And in all cases backfill is puddled and tamped to prevent settling.

Although this is considered the machine age, and new-fangled digging equipment has met with popular approval, the human touch to jobs such as these still remains. It's second nature with the many hard-working men who do this work to be careful with customer's property and they probably never give it more than passing thought that their efficiency is paying the company dividends in its public relations program.

New Type Gas Mask Was Developed for Navy

MORE than 1200 Consolidated Edison Company emergency men and gas and electric production station personnel serving in the Metropolitan New York area have now been trained in the use of a new type gas mask that was developed during the war for U. S. Navy fire-fighting teams.

The mask is used when workmen have to enter areas where there is a lack of oxygen or where the atmosphere contains poisonous or suffocating gases.

The Consolidated Edison System purchased 179 of the masks from Mine Safety Appliances Company, 8, Pittsburgh, after special tests by the utility's research laboratory engineers and chemists. The apparatus previously had been approved by the U. S. Bureau of Mines. It was kept a military secret during the war.

The respiratory protective equipment generates its own oxygen supply for the wearer, and permits rescuers to remain for 45 minutes in an area that has an oxygen deficient atmosphere.

Consolidated Edison has installed the masks are regular equipment on emergency trucks and has made them available for servicemen working under hazardous conditions. In addition, they are kept as standby equipment for firefighting and rescue work in generating stations.

Weighing only 13½ pounds, the apparatus is self-contained and permits freedom of movement in smoke or gas filled places. The facepiece has large lenses for full visibility. The unit is described as being comfortable to wear and handier to operate because there are no high pressure cylinders, valves, or fittings.

In Consolidated Edison's training program, trainees are instructed in the working parts of the apparatus and its circulatory system and practice donning the harness and facepiece. The wearer inserts the chemical canister in the assembly, automatically breaking its air tight seal. Natural breathing then sends the exhaled breath through an "exhalation tube," into the chemicals and moisture liberates fresh oxygen which flows through a neoprene bag that acts like a lung, into the "inhalation tube."

Each trainee wears the equipment until he is completely versed in its use. He also wears it in a room containing sulphur fumes so he can get experience operating it in a gaseous atmosphere. Under heavy exertion the oxygen supply lasts at least 45 minutes and when this pre-determined time limit has been reached, a bell on the device rings, warning the wearer to return to fresh air. Canisters can be easily replaced.

In charge of the program for Consolidated Edison are T. J. Shaughnessy, manager, and J. A. McCarthy, assistant manager of the department of resuscitation and related matters.

Instructing emergency men in use of new gas mask developed for Navy fire-fighting teams.

Applying Available Research Findings Would Create Venting Standards

by Carl H. Dean

Director of Education, Domestic Heating Division, Stewart-Warner Corp.

This is the second of a series of four articles on venting which Mr. Dean is writing for American Gas Journal. The third is scheduled to appear in the September issue.

LAST month we stated that we would attempt to analyze the points brought out in the Engineering Bulletin of Purdue University-Research Series No. 103, entitled "Research in Venting Direct Gas Heaters When No Chimney Connections Are Available." The first group of these points are the reasons for venting gas appliances. Let us at the outset state that we will offer no argument for or against the use of unvented gas appliances of small Btu input and or highly intermittant operation such as refrigerators, ranges, and auxiliary heating units up to a predetermined capacity provided such heating units are only used as auxiliary heating equipment and the total capacity does not exceed 25 per cent of the heating requirements of the home.

The products of complete combustion of our gases are clean, odorless, invisible and, in themselves, harmless. Why then should they be vented to the outside atmosphere? The prime reason is safety which is always the first consideration in a public utility operation. Gas appliances are subject to maladjustment and fouling of air mixers by lint which can result in the production of carbon monoxide. Carbon monoxide is considered to be a deadly poison. Why does the gas industry shun the mention of carbon monoxide? It isn't our baby. We didn't invent it. We have no monopoly in its production. It is a product of incomplete combustion of any fuel which contains carbon. That pretty well covers the field from gasoline to buffalo chips.

The possibility of carbon monoxide in itself is sufficient to warrant venting of appliances using any considerable quantity of gas over an extended period. But there is another reason which, from an economic viewpoint, is very important. That is the requirement for disposal to the outside atmosphere of the water vapor product of gas combustion.

The promiscuous use of unevented gas heaters in many sections of the country has built up the belief, which almost amounts to a superstition, that gas heat is wet. "If you heat with gas, your house will sweat." Faith in this legend is established when full-vented type heating appliances are installed without adequate venting installations. Spillage of the water vapor product of gas combustion at the draft diverter can create a genuine nuisance in the home. Competition has made much of this item and uses it on every occasion in attacks on gas cooking and refrigeration.

Because of the sealing of houses by modern methods of construction, any vapor released in the home remains for a long period and builds up the dew point until condensation takes place on cool surfaces. Often the water vapor produced by the ordinary procedures of housekeeping is more than sufficient to create this condition. Any additional water vapor resulting from the small amounts of gas used in the range and refrigerator could aggravate the condition in only a small degree.

But consider what can happen if the water vapor products of combustion from gas heating are released within the structure. The vapor produced by the combustion of ten therms of gas will condense to form about eleven gallons of water, (nine gallons by LP-gas). Do we fully realize what this means in a season's operation? It might be worth while to figure out on the accompanying chart just what does happen in your locality.

Select your design condition and efficiency of heating system. Multiply the Btu of fuel required per thousand Btu heat loss per degree day by the normal degree days for locality. Reduce to therms and multiply by heat loss of structure in thousands of Btu per hour. You now have the season's fuel consumption. Multiply the therms by 1.1 (.9 for LP-gas) to arrive at the gallons of water produced. A gallon of water weighs approximately eight and one third pounds.

A 30′ x 40′ bungalow built to modern standards of 60 Btu loss per square foot per hour in a 5500 degree day location with design temperature of zero, and equipped with a 75 per cent efficient heating system, will have to dispose of water vapor which will condense to form 16,523 pounds of water per season. Over one and a half tons can be produced in a single severe winter month. Most certainly here is a second reason for venting gas appliances using any considerable amounts of gas over extended periods.

Three Considerations

The Purdue bulletin reduces the venting installation to three considerations: air for combustion and venting; the lateral vent pipe from the draft diverter to the vertical flue; and the vertical flue. Is it unreasonable to assume that workable specifications can be drawn to cover these three points? For our guidance we have data compiled from a nationwide survey of existing installations showing the most common causes of inadequate functioning of venting installations. These are listed as: (1) Excessive thermal losses from vents and flues. (2) Exterior wind pressures. (3) Frictional resistance. (4) Negative interior pressures. (5) Insufficient flue capacity.

From this we can expect satisfactory performance of a venting installation which is kept warm and if the vertical section extends high enough to be unaffected by winds likely to produce down drafts; the lateral portion must be installed with sufficient rise and both lateral and vertical sections should be relatively straight and smooth. An adequate, continuous supply of air at the appliance is essential;

Btu fuel required per one thousand Btu loss per degree day. Add 10% for degree days under 3500. Subtract 10% for degree days over 6500.

Formula: $\frac{\text{Btu loss per hour (design basis}}{\text{Design Temperature Difference}} = \text{Btu loss per degree day. Comfort Heating AGA}$

Design Temperature Difference	(D.T.D.)	80% Efficiency	75% Efficiency	70% Efficiency
−30 to 70	100	300 Btu	320 Btu	343 Btu
−20 to 70	90	334 "	356 "	381 "
−10 to 70	80	375 "	400 "	429 "
0 to 70	70	429 "	457 "	490 "
10 to 70	60	500 "	533 "	571 "
20 to 70	50	600 "	640 "	686 "
30 to 70	40	750 "	800 "	857 "

Example: Bungalow 30′ x 40′—Estimated Heat Loss of 72,000 Btu per hour.
Seventy degree Design Temperature Difference. 5500 Degree Days.
457 times 5500 Equals 2,513,500 Btu or 25.135 Therms consumption per thousand Btu estimated heat loss per season.
72 times 25.135 equals 1809.72 Therms consumption per season.
1.1 times 1809.72 equals 1990.692 gallons water (condensed water vapor).
8.3 times 1990.692 equals 16,523 pounds—8¼ tons of water. (LP-gas—80% of this amount).

and the installation must be of sufficient capacity. It is as simple as that! Yet failure to comply with any one of these requirements not only can, but does result in inadequate venting. Now let us see what effect these findings will have on our venting specifications.

We will start with the vertical portion because that is the item which in most cases is already in place. Too often, masonry chimneys are of a size and location dictated by an architect's esthetic sense rather than consideration of the needs of the appliances which the chimney is supposed to serve. Thousands of inadequate venting installations have resulted from using existing chimneys because it is the easy thing to do.

Since excessive thermal loss was found to be the most frequent cause of failure we must question the use of masonry chimneys which have an entire side exposed to the weather or an unheated space such as a garage. Such chimneys are cold flues. Appliances fired by gas lend themselves to automatic control more readily than those using any other fuel and consequently automatic control is becoming almost universal. All of our heating appliances are oversized. They have to be. We must provide capacity for conditions which are experienced over only a small percentage of the heating season. For example, there are large sections of the country where the design is zero to seventy and the average temperature for the heating season is between 45 and 50. With equipment sized for a seventy degree rise called upon to furnish only twenty degrees, we have intermittant burner operation with long periods between. If the lateral vent is connected to a cold flue, the period of spillage at the draft diverter when the burner operation starts is of prolonged duration and the percentage of vapor products released within the house is increased.

So our specification must require inside chimneys. Flues must not be installed in outside walls, must be insulated when passing through attic spaces and must not be exposed to the weather for a length greater than three feet. These requirements will generally provide that the vertical section of our installation will be kept warm.

The effect of exterior wind pressures will in most cases be overcome by compliance with the standard requirement that the vertical flue extend at least two feet higher than any obstacle within fifteen feet of the flue. This might require keeping a tree trimmed or perhaps even removed.

To reduce frictional resistances the masonry chimney must have a smooth lining without offsets. If offsets are absolutely necessary, limitations as to angles must be in the specifications. This would also apply to installations of Type B flues.

We will omit discussion of negative interior pressure for the time being. The effective cross sectional area of the vertical flue should be equal to the combined cross sectional areas of the draft diverter openings of all appliances connected thereto. Existing specifications sometimes provide for effective cross sectional area equal to the cross sectional area of the draft diverter opening of the largest appliance plus 50 per cent of the cross section area of the draft diverter openings of other appliances connected thereto. his has been found in many cases to be insufficient to handle simultaneous operation of the appliances. We must stop trying to use *everywhere,* methods that are only effective *somewhere.* We must require, *everywhere,* the use of methods which work *everywhere.* If field research later proves that requirements are excessive for an area, revisions can be made for that area.

The application of the survey findings to the lateral vent pipe specifications are comparable. Lateral vent pipes in excess of five feet in length or running through unheated areas must be insulated. Exterior wind pressures do not directly affect the lateral vent. Regarding frictional resistances, use of any elbows must be restricted to the minimum ninety degree lateral elbows prohibited. No lateral elbow connections at the draft diverter should be permitted. When a right angle turn in the lateral vent must be made, it should be with two forty-five degree elbows separated by a two foot length of pipe, and with minimum rise maintained in both elbows and the length of pipe. Maximum possible rise should be maintained in the lateral portion of the venting installation. Absolute minimum *continuous* rise of one-half inch per running foot must be maintained in all parts of the lateral portion of the venting installation. Effective cross sectional area of the draft diverter opening must be maintained throughout this portion of the venting installation.

Air Is Still Free

Negative interior pressures are directly related to the other portion of the venting installation, air for combustion and venting. There has been a vast improvement in residential construction methods during the past fifteen years, but we seem to have developed an allergy to air. We as individuals have to have air. We install appliances which require air in our houses. Then we seal, and caulk and insulate and weatherstrip to the end that air is not available. Then we light our woodburning fireplace and turn on our kitchen exhaust fan and are astonished that negative pressures reverse the action of every flue in the house and all products of combustion

(Continued on page 42)

More than 3,000 mobile units in supervisor's cars, repair and maintenance trucks speed the work of approximately 80 gas companies licensed to operate more than 230 fixed position radio stations.

Plan Calls for Controlled Occupancy of Frequencies for Mobile Radio

GAS distribution systems are grouped with electric, water, and steam utilities in the new Part II of the Federal Communication Commission Rules and Regulations as eligible for licenses to operate radio systems in the Power Radio Service.

These new rules, effective July 1, 1949, are one of the results of long efforts on the part of the Commission to set up rules and allocate frequencies to the different mobile radio services to accommodate as many as possible of the legitimate prospective users of radio in the available spectrum space.

It is only comparatively recently that the gas companies, of which there are some 1200 in the country, have realized that benefits which result from the use of radio to aid in operation and maintenance of their distribution and transfer systems. On December 10, 1947 the AGA published a brochure describing the importance of radio to its member companies in an effort to educate the public and the industry itself concerning the necessity for having frequencies available for the type of service they require.

A recent survey of licenses granted in the Power Radio Service reveals that on July 1, 1949 approximately 80 gas companies were licensed to operate more than 230 fixed position land radio stations and more than 3000 mobile units. These units are used to reduce the time necessary for emergency crews to eliminate leaks, speed construction of new gas facilities, and generally to increase the efficiency of system operations.

From the fixed station radio control center, the operator is in constant and instant communication with any job within the range of his frequency.

Several photographs accompanying this article illustrate one type of equipment used in these land mobile radio systems and the sort of jobs where they are useful.

To assist the FCC in the complex task of selecting the particular frequency for assignment to an individual applicant, the power utility industry has organized itself in all parts of the country. Then regional groups, each one composed of users and prospective users in a particular geographical region, have been formd to make recommendations on frequency assignments and to provide centers for discussion of local user problems.

These regional groups, together with a number of trade organizations, have sponsored the organization of a national group known as the National Commitee for Utilities Radio to serve as a forum for discussion and a point of contact with FCC on matters of common interest to all regions.

The Chairman of NCUR, R. V. Dondanville, in his letter of June 29, 1949 to sponsors of NCUR, which is quoted here, has described the work of his group in preparing a national plan for frequency assignments which provides for most efficient use of available frequencies. This plan has been accepted by the FCC as a basis for preparation of regional patterns for frequency assignment recommendations which will permit operation of all the present systems with a minimum of mutual interference.

The new allocation of frequencies to the Power Radio Service which forms a portion of the new Part II of the FCC Rules and Regulations does not include many of the frequencies pre-

viously used by power utilities so that many existing licensees will have to change the frequency at which they operate. In doing so they are urged to accept the recommendation of the regional frequency coordination committee which will be based on an orderly plan tending to reduce interference to a minimum.

Mr. Dondanville's letter follows:

"Gentlemen:

"At the time of its formation, the National Committee for Utilitis Radio was charged with the responsibility, first, of persuading the Federal Communications Commission to allocate additional frequencies, and secondly, of developing plans for the coordination of frequency assignments to the end that all users might enjoy the most effective use of their radio facilities.

"NCUR presented convincing evidence to the FCC and obtained for the Power Radio Service additional frequencies which became available on July 1, 1949. On that date new Rules & Regulations governing all mobile-radio services go into effect. These reallocate the frequencies available to the respective services, and transfer to the other services all of the utility frequencies which are most heavily occupied at present. As a result only a few utility systems can remain on their present frequency and most must move.

"The question of which frequency each system should move to is largely answered by a National Plan for Coordinating Utility Frequency Assignments which was unanimously adopted by NCUR at its annual meeting on June 7. This Plan culminates four years of intensive work to develop a sound technical basis for the elimination of the present haphazard crowding on certain frequencies and for the alleviation and control of interference between utility radio systms.

Covers Entire Country

"The cornerstone of this Plan is the controlled occupancy of every available frequency according to a specific geographic pattern which covers he entire USA. This fundamental principle has been rcognized by the FCC, recommended by it to all other mobile services, and adopted by several.

"Within the Power Radio Service, ten Regional Frequency Coordinating Committees have the responsibility of recommending to all users the most suitable new frequency for their individual systems.

"These Committees are now ready to explain the details of the National Plan to all users, and to consider the economic and operating factors in individual cases before making recommendations. Their final recommendations, however, will be dictated largely by the complex, technical factors incorporated in the National Plan. For some systems the recommended frequency will be within the range of adjustment of present equipment and the change can be completed at a very nominal cost. For others, slight modifications of the equipment will be necessary, and the cost will be greater, although still nominal (normally between 10 and 15 per cent of the total radio system investment).

"If the objectives of the industry are to be realized and the efforts of the National Committee ar to bear fruit, it is essential that each licensee waive his personal preference, accept whatever cost differential may be involved, and conform to the final recommendation of the Regional Frequency Coordination Committee. In no other phase of utility activity is there so vital a need for complete and nation-wide coordination.

"For these reasons, NCUR voted unanimously to solicit the aid of all sponsoring organizations, in presenting the advantages of the plan to the managements of their respective members. Universal acceptance of the plan is essential to its success, and your active assistance in securing the support and conformity of all members who use radio, will be of great aid in accomplishing a more effective use of radio in the public interest."

Power Utility Regional Frequency Coordinating Groups

Showing Individual to Contact on Frequency Assignment Matters

UTILITY RADIO ASSOCIATION OF NEW ENGLAND — Covering Connecticut, Massachusetts, Vermont, New Hampshire and Maine.
W. C. Phillips, New England Power Service Co., 441 Stuart st., Boston 16, Mass.

MIDDLE ATLANTIC UTILITY RADIO ASSOCIATION — Covering New York, New Jersey, Delaware, Maryland, D. C., eastern half of Pa.
C. S. Young, Pennsylvania Power & Light Co., 901 Hamilton st., Allentown, Pa.

GREAT LAKES UTILITIES RADIO COMMITTEE—Covering Michigan, Wisconsin, Illinois, Indiana, Ohio, Kentucky, W. Va., Western Pennsylvania.
J. G. McKinley, West Penn Power Co., 14 Wood st., Pittsburgh 19, Pa.

MID-CENTRAL UTILITIES RADIO COMMITTEE — Covering Nebraska, Iowa, Kansas, Missouri, Oklahoma and Arkansas.
Harold Hartman, Oklahoma Gas & Electric Co., 321 North Harvey, Oklahoma City, Okla.

SOUTHEAST UTILITY RADIO GROUP — Covering Tenn., Va., No. Carolina, So. Carolina, Ga., Fla., Ala., Miss.
Blair Jenkins, Jr., Carolina Power & Light Co., Raleigh, No. Carolina.

UTILITIES RADIO COORDINATING ASSOCIATION OF TEXAS AND LOUISIANA — Covering Texas and Louisiana.
W. W. Eckles, Gulf States Utilities Co., 362 Liberty Ave., Beaumont, Texas.

SOUTHWEST COMMITTEE FOR UTILITIES RADIO — Covering California, Nevada, Utah and Arizona.
B. A. Currie, Dept. of Water & Power, City of Los Angeles, 207 S. B'way, Los Angeles, Calif.

NORTHWEST UTILITY RADIO ASSOCIATION — Covering Washington, Oregon, Idaho, Montana.
A. A. Noon, Pugent Sound Power & Light Co., Elec. Bldg., Seattle 11, Wash.

MINNESOTA-DAKOTAS UTILITIES RADIO COMMITTEE — Covering Minnesota, North Dakota and South Dakota.
L. E. Moline, Northern States Power Co., 15 S. 5th st., Minneapolis 2, Minn.

ROCKY MOUNTAIN UTILITY RADIO ASSOCIATION — Covering Wyoming, Colorado, New Mexice.
J. C. Livesay, Colorado Central Power Co., Englewood, Col.

FPC Approves Natural Gas for Baltimore

The Federal Power Commission has authorized Atlantic Seaboard Corp., a member of the Columbia Gas System, to sell natural gas to Consolidated Gas Electric Light and Power Co. of Baltimore. Authority was also given to Atlantic for construction of necessary metering and regulating facilities.

Sales to the Baltimore company will begin in May, 1950, and will involve volumes of up to 30 million cu. ft. per day for a period of five months; up to 55 million cu. ft. per day for the next succeeding 13 months; and up to 70 million cu. ft. per day thereafter.

Consolidated has indicated its intention to file rate schedules with the Maryland PSC accomplishing a $7,500,000 rate reduction.

New Gas Turbine Gas Line Pumping Unit Installed at Wilmar, Ark.

AN EXPERIMENTAL gas turbine gas line pump unit has been temporarily installed by the Mississippi River Fuel Corp. at its Wilmar, Arkansas, pumping station, on the 22-inch pipe line connecting Monroe, La. with St. Louis, Mo.

This first experimental gas turbine is a 2000-hp unit which has been on test at the Westinghouse, South Philadelphia Works, since September 1946. These shop tests have thoroughly established the component efficiencies, fuel rates, and operating characteristics. The unit was modified by replacing the reduction gear and dc generators, used for shop testing, with a direct-connected Ingersoll-Rand centrifugal-type gas booster. This commercial application should establish the life of the high-temperature parts.

The gas turbine gas line pumping unit consists of a straight-through simple open-cycle gas turbine direct connected to a centrifugal-type gas booster. The complete unit, with all auxiliaries, is mounted on a single bedplate and is 20 feet long, five feet wide, 4½ feet high and weighing 26,000 pounds. The bedplate is fabricated and is rigid enough to maintain alignment of the high speed rotating parts making separate rigid foundations unnecessary and allowing the unit to be assembled at the factory and shipped as a complete package. The unit is rated at 1850 hp output to the gas booster based on inlet air conditions of 14.7 psia and 100° F temperature. Figure 1 shows an outline drawing of the unit.

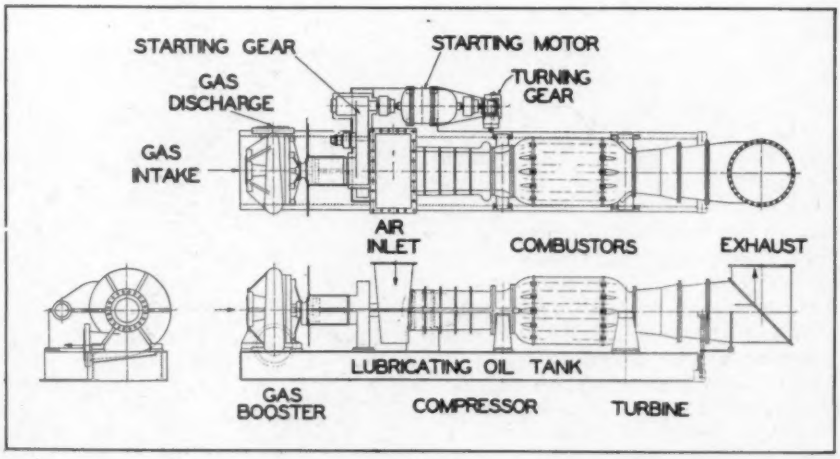


Fig. 1

Figure 2 shows a longitudinal section of the working elements of the gas turbine power unit. Free air enters the compressor at the left, is compressed to approximately five atmospheres, passes into twelve tubular type combustors where fuel is injected and burned, and then the heated air and products of combustion are expanded through the turbine, and exhausted to the atmosphere. About 2/3 the turbine output is consumed by the compressor, the remainder being available to drive the gas booster.

The 8750 rpm turbine-compressor shaft is direct connected to the gas booster. A small reduction gear, driven from the main shaft, is used for starting the turbine and driving auxiliaries.

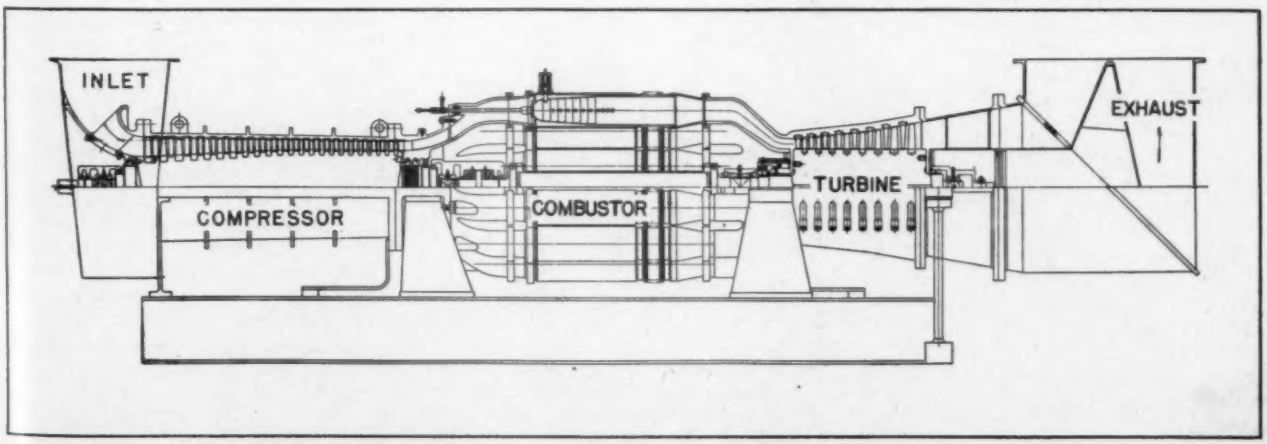
The air compressor for the gas turbine is of the axial flow type designed to pass 28,000 cfm of air at a pressure ratio of 5:1 at full load conditions.

The compressor contains twenty-three stages of non-symmetric blading designed so that the major pressure rise occurs in the rotating blades. The compressor rotor is a solid carbon steel forging and the compressor cylinder is made of welded steel plate. The compressor and turbine are direct connected by a jack shaft.

The twelve combustors six inches in diameter and three feet long are located between the compressor and the turbine so as to provide a mini-

(Continued on page 47)

Fig. 2



Con-Edison Sends Data Booklet to Its New Stockholders

TO CREATE a closer relationship between individual stockholders—especially new stockholders—and the company, Consolidated Edison Company of New York, Inc., has prepared a booklet containing background information about the company and the services it renders.

New stockholders now receive a 24-page booklet, titled "An Introduction to Con Edison." Currently, persons becoming stockholders receive a letter of welcome from the chairman of the board and a copy of the latest annual report. These are mailed as soon as the names are entered in the company's stock transfer books. This practice will be continued.

The new booklet presents background information about Con Edison and its market in an easy-to-read manner. Used in conjunction with the latest annual report, it gives a well-rounded picture of the company and its operations. The new booklet is well illustrated.

Among other things the booklet states: "If, in the Biblical phrase, 'a servant is worthy of his hire,' Con Edison, the greatest public servant in the largest city of the world, should be a safe and useful place for your money to work for the public benefit. Our policy is to give the best service at the lowest prices consistent with a fair return to those who invest in our business."

The booklet reviews the factors that contribute to New York City's greatness: diversified industries, wholesale trade, retail shops, financial and commercial activity, service industries, transportation networks and growing population. It is noted that, "This wide diversification of commerce and industry and the enormous consumer goods production here, together account in a large measure for the very high degree of stability in our business."

According to the booklet, Edison's 154,368 stockholders exceed in number those of any other electric or gas operating company. Only nine American corporations of any kind have more. Officials of the company stated that the number of new stockholders averages 1300 a month.

"An Introduction to Con Edison" will be revised periodically to keep the information up-to-date. The booklet is available to present stockholders on request.

Forward at International Gas Conference

Alexander Forward, formerly managing director of the AGA, attended the London conference. In this group are: C. W. Pilo, of Sweden (front, left) Prof. G. Brender A' Brandis, of Holland (front, right) C. L. Philips, of Holland (rear, left) and Major Forward.

Demonstration of Oil Shale Mining Set for Sept.

A public demonstration run will be made in the experimental oil shale mine near Rifle, Colo., from September 7 through October 4, according to James Boyd, Director of the Bureau of Mines.

The top level will be worked for the first two weeks and the bench level for the following two, Boyd said. On the night of September 20, while the equipment is being moved to the lower level, a dinner meeting of visitors and the staff will be held at the Colorado Hotel in nearby Glenwood Springs. This will enable short-term visitors to see the different type operations in progress on succeeding days— Tuesday and Wednesday, September 20 and 21—and to hear the dinner speakers, Boyd explained. The full program for this event, one of a series celebrating the 100th anniversary of the department—"A Century of Conservation"—will be announced later.

Special Tours Planned

Escorted mine inspection tours to be conducted on September 20 and 21 will include a stop at the oil-shale demonstration plant where the gas-flow shale retort and the new experimental refinery will be in operation. Placed "on stream" recently, the 200-barrel-a-day refinery is a highly flexible unit that will produce gasoline, Diesel fuel, heating fuels, and fuel gas. It has facilities for topping, cracking to coke and recycle cracking, sulfuric acid treating, rerunning naphtha, and doctor sweetening.

R. B. Anderson Assails Federal Policy of Curbing Use of Gas and Oil

The use of federal government regulations to curb the competition that Texas petroleum is giving coal in the east and north was criticized by R. B. Anderson, president of the Texas Mid-Continent Oil & Gas Association, in a speech before the national convention of Theta Sigma Phi, women's journalism fraternity, at Dallas on July 25.

In a luncheon session of the convention devoted to "oil is news," Mr. Anderson outlined the way in which the economic welfare of Texas is dependent on an annual income of more than $2,000,000,000 a year from the sale of petroleum and products.

"The prosperity of any region is in direct proportion to the amount of goods and services it can contribute to the national economy," he said in a prepared speech.

"Our chief contribution is energy. Texas oil and gas provides about 22 per cent of all the energy used in the nation's 41 million automobiles, the trains, electric generating plants, factories, and heating units.

"The number one threat to Texas' ability to share in a free competitive fuel market lies in the attempt by our coal competitors and their allies in labor and transportation, to use the federal government to throttle the supply of Texas petroleum."

Mr. Anderson called attention to the recent National Planning Association report to the President's Council of Economic Advisers which advocated a federal policy to restrict use of oil and gas from the Southwest in coal producing areas.

Coal interests have advocated the idea at Federal Power Commission hearings that the use of Southern mineral resources in the coal country would "blight" the South's economy, he pointed out.

"Those who today advocate this idea in the high councils of our government would put the consumer in the east and the north at the mercy of the coal operator and the coal union czars with a government-approved monopoly. By such action, they would blight the economy of our section of the country today," the industry spokesman said.

Mr. Anderson said that Texas and other southwestern states' conservation laws and industry practices would assure the nation of a supply of energy for a maximum time.

"If Texans and others in the oil producing states of the southwest can continue to sell their petroleum and gas in a free competitive market with other fuels, the nation will have a good source of low-cost energy and the southwest can be assured of a continued and growing prosperity."

Liquefaction for Storage of Natural Gas Shows Plant Investment Economy

by Irving Resnick

Chief Process Engineer, Stacey-Dresser Engineering, Cleveland, Ohio

THE utility using natural gas from a long distance pipe line is confronted with two major problems; to ensure a flow of gas to its customers in case of an interruption of natural gas, and to provide a means of generating gas during the winter months when the sendout requirements exceed the pipe line supply.

Many communities which have converted from manufactured gas to natural gas have their existing facilities available which can be altered to produce a high Btu gas to supplement the natural gas supply. Others maintain propane-air as stand-by.

When a propane-air plant is installed or a high Btu oil gas is made for meeting peak loads, the utility is dependent on an adequate supply of liquid fuel to meet its peak load.

An interruption in service can be forestalled by providing adequate storage facilities close to the point of consumption. The gas that is stored should be in a form where it can be readily available at a moment's notice; where it can be conveniently returned to the transmission line at the desired pressure; and where the maximum number of cubic feet can be concentrated at minimum cost.

One attractive method of meeting these stipulated conditions is by the liquefaction of natural gas. One cu. ft. of liquid natural gas at atmospheric pressure will produce approximately 600 cu. ft. of free gas at ordinary temperature. Liquefaction permits the storage of large volumes of natural gas at lower investment cost than is possible by any other means.

The main function of a liquefaction, storage and regasification plant is to store a large quantity of natural gas close to the area of consumption so that it would be available at a moment's notice if the plant is used for emergency service.

Condensed from a paper presented before the Production and Chemical Conference of the American Gas Association, May 1949.

For a plant that is operated for peak loads only, the storage tanks need not be maintained full during the summer months. At the end of the winter season the gas in storage is permitted to evaporate and the plant stands idle until the autumn season. At that time, the storage tanks are refilled and the plant remains in a standby condition ready to return gas to the transmission line.

For emergency service, the storage plant should be maintained full at all times. The evaporation loss from storage is approximately 0.2 per cent per day. Thus, it would take approximately 500 days for the entire storage of liquid natural gas to evaporate completely. In order to maintain the storage plant full, it is necessary to reliquefy at regular intervals to compensate for the gas that has been evaporated. Since the evaporation rate is small, it is not necessary to reliquefy frequently.

During the winter months the liquefaction and regasification plant should be ready for operation. When a shortage of gas occurs the regasification plant is put into operation and returns gas to the system. When the peak load has been met, liquefaction is started as soon thereafter as possible in order to maintain the storage full and to derive the maximum benefit from the plant.

There are two main processes that are thermodynamically efficient for liquefying natural gas: namely, the expander cycle and the cascade refrigeration cycle.

In the expander cycle, the natural gas is compressed and cooled with an independent stream which is adiabatically expanded through an expansion engine. This independent stream cools the incoming natural gas which is then self-refrigerated by flashing. The flash gases are also used to refrigerate the feed stream. In all the studies made the horsepower requirements exceeded those required for the cascade refrigeration cycle.

In the cascade refrigeration cycle, water is used to condensate the first refrigerant. This refrigerant is then flashed to a lower pressure and by vaporizing a portion of its own liquid becomes self-refrigerated. At the lower temperature it is used to condense the second refrigerant which in turn may be used to condense a third refrigerant or the natural gas. Various refrigerants and cascade cycles have been investigated including the ammonia - ethylene cycle, the ammonia-ethane cycle, and the ethane cycle.

Chicago Plans to Liquefy and Store Natural Gas

The Federal Power Commission has authorized Chicago District Pipeline Co. to construct a $6,000,000 plant near Chicago to store natural gas in liquid form.

The plant, is to be located in an isolated area of Will County, Ill., will have a storage capacity of 400,000,000 cu. ft., and will contain facilities for liquefying approximately 4,000,000 cu. ft. daily, and for regasification at the rate of 6,000,000 cu. ft per hour.

The Commission noted that the company has studied the problem of storing natural gas in liquid form since 1929, and has operated a pilot plant since 1934. In addition, FPC said, studies have been made of other known pilot plants and commercial operations involving such storage. These studies, the Commission concluded, appear to establish the engineering feasibility and technical soundness of the proposed method of liquefaction and storage of natural gas.

The company will offer the storage facilities to its customer companies under a rate schedule based on cost of service. Construction of the plant will be financed through a loan from Chicago District's parent company, The People Gas Light and Coke Co.

Calculations indicated that the ammonia-ethylene cycle required the minimum horsepower and was best from an operating standpoint.

In the operation of the ammonia-ethylene cascade for the liquefaction of natural gas, the gas is initially treated for the removal of hydrogen sulfide, carbon dioxide and water. After purification the natural gas is compressed, cooled with water, and condensed with boiling ethylene near the critical temperature of the natural gas. The liquefied natural gas is further refrigerated by a series of pressure reductions, thereby partially vaporizing. The gas which is vaporized is put to useful work as a cooling agent, acting on the incoming natural gas, ethylene and ammonia. After being reheated to approximately room temperature it is recompressed and returned to the system with the incoming natural gas. The liquefied natural gas often being reduced in pressure and temperature, goes to the storage tanks.

The economics of such a plant are somewhat difficult to evaluate since the size of the storage plant, liquefaction plant and the regasification plant are to some extent independent variables and would vary for different locations and applications. The size of the regasification plant would be determined by the maximum send out requirement. The storage plant would be sized either by the requirement for an emergency interruption in pipe line service or by the peak load requirements or both. If the plant is to be used for emergency service only, the liquefaction plant need not be very much larger than to compensate for the evaporation loss. Whereas if the plant is to be used for peak load operation only, it is advantageous to have a large liquefaction plant and a small storage plant.

From cost estimates that have been prepared it has been found that natural gas storage as a liquid costs approximately $7.00/Mcf in plant investment. This is to be compared with $5.00/Mcf (natural gas equivalent) for propane equipment and approximately $100/Mcf for gas holders. The raw material costs for propane, however, are considerably higher.

Since the storage plant represents a major portion of the overall plant cost, it is desirable wherever possible to maintain the storage plant small and plan on reliquefying during the winter season as frequently as possible between peak days. In this manner effective utilization of the storage is achieved.

If a liquefaction, storage and regasification plant can return to the system two, three or four times as much gas as the storage facilities can hold, it is always a very economical investment. The capital and a major portion of the operating charges are fixed and by increasing the storage turnover, these expenses per 1000 Mcf are reduced. Once a plant has been installed, peak load gas can be supplied by it at a much lower cost than from oil-gas or propane-air gas facilities.

From a purely economic viewpoint a number of comparative estimates showed that where the peak send-out rates are high (48 MMcfd and larger) that the L. S. and R. is more economical than a propane-air plant, besides providing insurance in care of pipeline break, returning a gas which is 100 per cent interchangeable, and being independent on an outside liquid fuel supply.

Prospects Unfavorable for Export of Canadian Gas to Northwest

PACIFIC Northwest states of Oregon and Washington may have to wait a long time for the help which they had hoped might be forthcoming in the form of natural gas supplies from the Canadian Province of Alberta.

Information coming from well-informed sources in the Dominion is that the Albertan authorities will not permit exportation of gas from the province until it is established beyond peradventure that such exports will not in any way prejudice the local supply for a long period, probably 50 years.

The best estimates of proved reserves of gas in Alberta currently are that they approximate 4¼ trillion cu. ft. This figure is roughly the same as that which had been estimated by the Gas Commission early in the year.

While a good many wildcat wells have shown gas, Provincial authorities point out there has been no systematic drilling to determine the size and gas content of the area surrounding these showings. For the present, they are regarded as only potential, and not as additional reserves.

Alberta has stipulated five trillion cu. ft. as the minimum amount of natural gas which should be reserved for the Province's needs. This is based on the estimate that average local consumption over the foreseeable future will not be less than 100 billion cu. ft. a year.

Even when the Alberta present and prospective gas needs are taken care of, still another factor may delay sending gas into the United States. The present thinking in the province is that Canadian cities are next entitled to consideration, after Alberta's own local needs have been anticipated.

On the supposition that there is no direct feasible route through the Canadian mountains to Vancouver in British Columbia, this would mean that Winnipeg has priority over any export scheme.

On this basis Oregon and Washington would have to wait until ample provision had been made for three Canadian provinces, Alberta, Saskatchewan and Manitoba.

Advocates of a Winnipeg pipe line admit one serious qualification. That is its feasibility from a financial point of view. Some question has been raised as to whether a sufficiently satisfactory load factor could be established to justify spending $45,000,000 to send Alberta gas east to this capital city of Manitoba, where present gas consumption is only about 2,000 Mcf per day.

There are two basic requirements to be met before Canadian gas can be piped into the Northwest. The proposed pipe line company must be incorporated by a special act of Parliament to obtain powers of right-of-way expropriation; and authority to take gas out of Canada must be obtained at Ottawa and not from the Province concerned.

It appears however, that even after such Dominion authority has been obtained, the Province of Alberta has the final say as to whether gas may leave its borders destined either for other Canadian Provinces or for Pacific Northwestern states. This check-rein was created by the Alberta Legislature when it adopted legislation early last month for the dual purpose of strengthening the Provincial Government's needs in connection with conservation and for controlling the export of gas from the Province.

The Provincial idea is that even if the construction of transmission lines is authorized at Ottawa, and the permit is granted to take gas out of Canada, Alberta will still have an effective power of veto through its new legislation.

Two companies have been incorporated at Ottawa for transportation

of natural gas. West Coast Transmission Company Ltd., contemplates taking gas from northern Alberta direct to Vancouver, B. C., by a Canadian route and thence to Seattle and through parts of the United States Pacific Northwest. Western Pipe Line plans to take gas to Winnipeg.

The third line, which was an initial entrant in the field, has not been successful to date in obtaining incorporation at Ottawa. This is the Northwest Natural Gas Company, which planned to take Alberta gas direct to the Pacific Northwest thence back up the coast to Vancouver, British Columbia.

Initial capacity of this Northwest Natural line had been set at somewhat over 200 million cu. ft. a day, and a similar figure probably holds true for West Coast Transmission. Both lines, according to the thinking of Canadian

(Continued on page 44)

Louisiana Gas to the Dominion Is Latest Pipe Line Rumor

ALONG with the current report that Canadian authorities may turn a deaf ear to the requests of pipe line promoters who want to take gas out of the province of Alberta and export it to the United States, a companion rumor crops up to the effect that American Gas Transit Cpn. Ltd., the $300 million Canadian or British backed line plans to send gas into Toronto.

American Gas Transit is said to be seeking six trillion cu. ft. of Louisiana gas, at the rate of 500 million feet a day, to put through its contemplated 1,300 mile 30 inch line. Early reports were that the line would run to Chicago; and it is obvious that any gas transit system carrying a volume of 500 million feet a day will have to look to some densely populated or industrial area for sufficient market to justify the investment, which in this instance is expected to cost $300 million.

The Chicago market needs more natural gas, and several projects have been advanced over the past year to bring a new supply into that area. The original Trunk Line Gas Supply Co. line had ambitions to connect with Natural Gas Pipeline Co. of America at a point in Iowa. An application is still pending before the Federal Power Commission for Gulfcoast Northern Gas Company to bring gas from Texas fields to the main line of Natural Gas Pipe Line Co., in Henry County, Ill. The most recent development in the competition to bring more gas into Chicago has been the formation of the Texas Illinois Natural Gas Pipe Line Co., as a subsidiary of The Peoples Gas Light and Coke Co., Chicago. The new transmission company proposes to build and operate a 1,000 mile 30 inch line from the Houston area to a connection at Joliet, Ill.

Under these circumstances observers point out that it is highly unlikely that American Gas Transit will be able, or even hopes, to sell gas to The Peoples Gas Light and Coke Co. For this reason the question is being asked whether or not the new line may not be envisioned as a straight industrial gas pipe line project, preparing to serve industries in the Gary, Ind., area, selling gas on an uninterruptible basis basis and offering no gas at all for resale through distributing gas utilities.

Conceivably, it has been pointed out, such a line could cross Michigan to Detroit, with a lateral to Toledo, cross over into Canada at some point near Detroit, and once in the Dominion, where its operations would be out from under Federal Power Commission regulation, supply gas to any cities or towns along the line from Windsor to Toronto.

In terms of a grandiose conception of the amount of gas that could be put through a 30 inch line, operating at 1,000 psi, as the American Gas Transit system is staid to propose, the total that the entire province of Ontario could consume would be almost insignificant. Translated into natural gas equivalent, of the daily send out of towns in the Windsor area, in Hamilton and in Toronto, 20 million feet per day would be a liberat estimate of possible immediate consumption. What other ambitious plans the Canadian or English backers may have for the area to be served by their line is presently being kept secret. Possibilities are: The building up of a greater industrial activity, or the supplanting of United States coal that is presently being shipped in considerable quantities into this area.

It is significant that those who have commented on the proposed line to take gas into Canada, have spoken of it as a reciprocity project. Whether they regard it as such or not, it is reasonable to assume that before the FPC authorizes the export of gas into the Dominion, from the United States, there will have to be a clear understanding of both the Dominion government and Alberta's intentions with respect to the policy of permitting the export of Canadian natural gas.

Reforming of Natural Gas Produces Plant Expense Problems

by R. B. Paquette

Assistant Chief Chemist, The Peoples Gas Light & Coke Co., Chicago, Ill.

THE Peoples Gas Light and Coke Company has manufactured a reformed natural gas in conventional water gas sets since 1933. This paper will describe operating difficulties more or less peculiar to the reforming operation in the hope that our experience, while not universally applicable, may be of benefit to those beginning similar processing.

Probably the most immediate and obvious difficulty to be encountered concerns the production of lampblack, viscous tar, and pitch. Since these materials as well as fly ash are intimately connected with the nature of the fuel and the temperature of the bed, it may be convenient to discuss them together.

Lampblack and tar are made in varying amounts during reforming cycles with deposits occurring in the tubular coolers. It was found that steaming out the coolers did not overcome the increasing pressure drop. Some relief was given by a period of carburetted water gas operation, presumably by reason of the flushing action of water gas tar, but on return to 100 per cent reformed operation, the situation became critical.

The material plugging the coolers was found to be a mixture of one part lampblack and two parts viscous tar. The use of steam merely hardened the deposit. Removal was accomplished by recirculating hot water gas tar thinned with primary condensate from the light oil plant through the coolers at the rate of 0.2 gals. per Mcf of gas. The method was successful and some modification of it may be tried in any case of such stoppage.

Fly Ash Causes Trouble

We have also experienced difficulty with fly ash plugging the carburetters. The first coke used had an ash fusion of over 2725° F, and it was thought that much ash was blown over to the checkers by the high blasting rate. To overcome this we began using a low ash fusion coke, about 2300° F, and tests made while using this coke showed very little lampblack or fly ash leaving the generator. It appears probable that the low fusion ash is

Condensed from a paper presented before the Production and Chemical Conference of the American Gas Association, May 1949.

more effective in holding the lampblack, and it has been used regularly during the succeeding years.

The gases leaving the generator are examined by allowing a small stream to blow through a clean rag for five seconds. The deposit on the rag indexes the lampblack and tar content of the gas, and steam ratios are changed when lampblack production becomes excessive. With the low fusion coke it appears possible to keep the lampblack in the gas leaving the generator to a reasonable minimum, about one to two grains per 100 cu. ft., with such steam changes. It is much more difficult to effect this control with the high ash fusion coke although with further investigation the problem might have been overcome. Concerning the magnitude of the problem, we have determined the lampblack content of the gas during periods of poor operation to be as high as 16 grains per 100 cu. ft.

Keep Around 1100 Degrees

Our present thought contemplates operation of the set to give, as an index of the fire bed temperature, a pyrometer reading of 1100° F in the offtake elbow at the base of the generator, on the down run. With such reading operating troubles in the set are at a minimum. If temperatures go above 1200° F, lampblack production is excessive and may be beyond control with steam changes. On the other hand operation with temperatures as low as 900° F results in the formation of pitch which in extreme cases will plug the grates. Proper operating temperatures must be determined for each plant and the data given are offered as guides. Before leaving the consideration of lampblack it may be well to point out that much lampblack will be produced in the machine whenever hydrocarbons are cracked to hydrogen. The problem is not to avoid making lampblack but to hold it in the generator where it will be consumed by the steam or air.

As an additional safeguard to cover occasional periods of tar and lampblack production it is now customary to add 12 gals. of gas oil per hour to the carburetter. The oil produces sufficient fluid tar to flush these materials along to drains. The making of regularly scheduled pressure-drop surveys throughout the plant is also advised.

Naphthalene also is produced by the reforming process and the reformed gas will very probably be saturated with it at the outlet of the cooling equipment. Gases entering the relief holder have shown as high as 100 grains of naphthalene per 100 cu. ft. It is recommended that some type of naphthalene removal be used before the gas goes to the purifiers. If a light oil plant is included in the circuit, light oil production from the reformed gas will run from 10 gals. to 40 gals. per million cu. ft. of gas.

The next serious difficulty which we encountered was the corrosion of small water connections to the wash box and the graphitization of the impellor of the recirculation water pump. This was found to be the result of an acid condition of the recirculating water and it was promptly eliminated by the increase of water through-put in the recirculating system. The same trouble has been reported by plants making blue gas for long periods of time. Another phase of the same problem occurred a few years later when it was found that the gas stream after the coolers had caused serious corrosion of the vanes and blades on a turbo-compressor. Investigation showed pH values of cooler condensates to be as low as 3.5. Further increases in water through-put in the recirculating system served to lessen the acidity of the condensates. It is suggested that observations be made of acidity of all drip and condensate water to prevent such corrosion since in the absence of water gas tar the metal surfaces of holders, coolers, and piping is directly exposed to the acid water.

Another problem not immediately obvious concerns the deterioration of carburetter checkerbrick. Since in reforming operation no secondary air is used the checkers stand up well and inspection from the outside indicates but little. However, the checkers lose much weight and have poor heat retention properties after long periods of reforming. There is also deep flaking of the piers or arch supports. It is our custom to replace the carburetter checkers annually since our machines must be ready to produce carburetted water gas on short notice. Superheater checkers are much less affected and last much longer.

Brooklyn Union

(Continued from page 14)

on a quarterly basis prior to suspension of payments in September, 1947. This brings the year's payment to date to 90 cents a share.

In advising stockholders of the favorable effect which rate increases and lower operating costs, resulting largely from sharp cuts in oil prices, have had on the company, Clifford E. Paige, Chairman and President, states that: "Estimated earnings on an annual basis are not yet sufficient to provide the return necessary to attract additional money for expansion and still greater service to customers and the community. We are hopeful that the present trend towards adequate earnings will continue."

It is significant, however, that Mr. Paige closes his letter to stockholders in an optimistic view in concluding his statement with: "It is interesting to note that even after a hundred years of gas service to the community, our outlook and prospects for future usefulness are brighter than at any time in our history."

Much of Mr. Paige's optimism apparently stems from two factors—a continued leveling off of cost factors and the increased operating efficiencies which are expected to result when natural gas comes into the area late next summer.

THE NEW ADDRESS

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PLEASE CHANGE YOUR RECORDS

Recent Gas Law Suits Reviewed Briefly

by Leo T. Parker

"WHAT is the true legal meaning of 'police power' and can a state, county or city declare a contract between a gas corporation and a city void under the guise of 'police power'?"

It is important to explain that all courts recognize the fact that good government is based upon the proposition that certain inherent natural rights of the individual must be surrendered for the common good of all. If this principle were not applied, government could not exist. It is one of the prime essentials of the principles of public policy that freedom of contract and private dealings may be impliedly restricted by law for the good of the community. It is a corollary to this proposition that all contracts are subject to the paramount rights of the public, and the subject matter must tend to the promotion of the health, order, convenience, and comfort of the people and the prevention and punishment of injuries and offenses to the public. This right is known as police power.

According to a recent higher court, no agency, not even a government agent, can vary or change present gas rates and the like where the testimony shows that a valid contract exists between the gas company and the municipality specifying present and future rates for gas, and no emergency exists which for the good and benefit of the people requires variations of the contract.

For example, in Porter v. Ohio Fuel Gas Company, 158 Fed (2d) 814, the testimony showed facts, as follows: In the summer of 1940 the Ohio Fuel Gas Co. agreed to supply natural gas to a city at rates established in ordinances passed by the city. Pursuant to escalator clauses in the ordinances the rates were to be increased in July 1943 and again in 1944.

In 1945 a taxpayer instituted suit for injunctions restraining the Ohio Fuel Gas Company from collecting charges in excess of the rates in effect on September 15, 1942. This suit was based on the war time Stabilization Act, 50 U.S.C.A. Appendix, 961, which provides that no "public utility shall make any general increase in its rates or charges which were in effect on September 15, 1942. . . . "

The higher court refused to decide that the United States Price Administrator could interfere with gas rates established by valid contracts and ordinances. This court said:

"The Price Administrator had no authority to fix rates, and cases dealing with price ceilings on rents and commodities furnish no analogy because the Administrator is expressly given power over prices. The most he can do under any circumstances, in respect to utility rates, is to persuade municipal authorities that proposed rates are unfair and unflationary. But he can neither direct nor persuade municipal authorities to set aside rates which, under the laws and Constitution are beyond their power to change."

According to a recent higher court the Public Service Commission may *amend* a contract between a gas corporation and a municipality if an emergency exists which is likely to affect the health, safety, and welfare of the people of the state. This is so because the law in all states is well settled that all contracts are subject to the paramount rights of the public, and the courts will read into all contracts regulations essential for the promotion of the health, safety and welfare of the people.

For example, in City of Akron v. Public Utilities Commission, 78 N. E. (2d) 890, the higher court was asked to decide this question: Has the Public Service Commission jurisdiction and authority to adopt emergency rules and regulations which in effect suspend for a limited period the operation of certain terms of a contract duly entered into by a municipality and a public utility for gas to be furnished to the inhabitants and residents of the municipality? This court held in the affirmative, although it was argued that any impairment of a valid contract is violative of Section 10, Article 1 of the United States Constitution.

The testimony showed that gas companies which served both industrial and domestic users of gas were not able to secure sufficient supplies of gas due to the non-completion of transmission lines from other fields to supply gas to all who required it. However, a valid contract existed between the gas company and the municipality by the terms of which gas was furnished to both industrial and domestice users in any quantity desired. The Public Service Commission adopted certain emergency rules and regulations, one of which was that "no distributing utility shall supply natural gas service to any consumer for equipment designed to furnish the source of space heating that replaces other fuels, or for additional space-heating equipment." The higher court upheld the validity of this rule, and said:

"It is to be observed that we are dealing with an emergency situation affecting the health, safety and welfare of the people of Ohio. The order

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Max W. Ball
Oil and Gas Consultant
1025 Vermont Avenue, N.W.
Washington, D. C.

EDITOR, AMERICAN GAS JOURNAL:

In the paper on "Underground Gas Storage" that I gave before the AGA at French Lick I listed 80 storage fields in use and 14 being prepared for use. Since the paper was delivered, I have learned of three more fields in use. No doubt there are others. I should like to know about them in order that my next paper on the subject may be complete.

I hope that anyone who knows of a storage field not listed in the French Lick paper, whether in use or in preparation for use, will write me.

MAX W. BALL

of the Public Utilities Commission is general in its provisions and effective throughout the entire state. . . . The principle seems well established that when . . . the subject of the contract is one which affects the safety and welfare of the public, such contracts are held to be within the supervising power and control of the Legislature to protect the public safety, health and morals."

Also, see Board of County Commissioners v. Public Utilities Commission, 140 N. E. 87. This court held that the law is established that all contracts are subject to the *police power* of the state and that when in an emergency the public welfare requires the modification of contractual provisions, the primary question is not whether the power to be exercised, directly or indirectly, affects the contract, but whether the proposed action is *reasonably* essential in the interest of the public health, safety, morals or welfare.

For comparison, see Newman v. East Ohio Gas Company, 78 N. E. (2d) 897. Here it was shown that a gas company adopted an emergency rule which restricted the use of natural gas for space heating purposes contrary to the terms of a contract between the company and the city. Also, the rule was adopted without consent of the city and it was approved by the Public Service Commission without notice to the city. Nevertheless no *proof* was given that the rule was *necessary* for the protection of the health, safety and welfare of the people. Therefore, the higher court refused to uphold the validity of the rule or regulation.

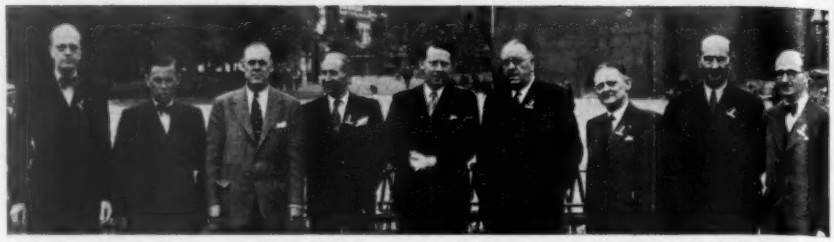
Gas Institute Starts Work on New Building

The Institute of Gas Technology is constructing a new building in Chicago to house its precision laboratories, some of its research laboratories, its educational facilities, information service, library and administrative and business offices.

Consisting of two stories and a full basement, the reinforced-concrete structure will occupy a space 168 ft. by 72 ft. in a 70,000 sq. ft. plot, the remainder of which is reserved for future expansion. This plot is located on the south side of 34th Street between State and Dearborn Streets on the campus of Illinois Institute of Technology.

Total cost of the Institute's new quarters, including utilities, landscaping and architectural fees, will approximate $600,000. It is being financed through contributions from gas companies.

The Institute has announced that the total number of Institute Fellows in training at a specified date has risen from 10 in 1946 to 21 in 1949. Six Fellows were graduated in June and are now working in the industry.



Courtesy British Gas Council

Robert W. Hendee, AGA President, was one of the speakers at the fourth International Gas Conference, held recently in London.

Here are pictured the Presidents of the gas associations affiliated with the International Gas Union with Rt. Hon. Hugh Gaitskell, who is British Minister of Fuel.

Left to right: A. M. F. van Mierlo (Holland), C. W. Pilo (Sweden), Mr. Hendee, M. Brabant (Belgium), Rt. Hon. Hugh Gaitskell, Col. C. M. Croft (Gt. Britain), President IGU, B. Hansen (Denmark), F. Pregermain (France), and M. Trechsel (Switzerland).

Private Building Construction Down, Govt. Contracts Up, Dodge Reports

F. W. Dodge Corporation reports that the dollar volume of contracts awarded for building and engineering works in the thirty-seven states east of the Rocky Mountains amounted to $4,467,676,000 in the first half of this year to show a decline of six per cent from the corresponding period of last year.

High lights of the corporation's analysis of building and construction trends in the six-month period follow:

Contracts awarded by government agencies and public bodies showed a 17 per cent increase over the first half of last year with a total of $1,756,243,000.

Private building and engineering contracts totaled $2,711,433,000, down 17 per cent from the private-work total for the first half of last year.

The over-all first-half decline of six per cent reflected a six per cent drop in nonresidential contracts to a total of $1,744,180,000. Residential awards declined 11 per cent to total $1,624,799,000 while public works and utilities volume totaled $1,098,697,000, a gain of one per cent over the corresponding half of last year.

The increasing volume of public-account work was the principal characteristic of the half-year trend, and it affected appreciably all major classifications of building and construction, the Dodge analysis shows.

Public-account nonresidential contracts in the first half amounted to $644,417,000 or 37 per cent of all nonresidential building awards. Public agencies awarded residential contracts amounting to $177,661,000 in the first half, and this volume represented 11 per cent of all residential awards. Public-account heavy engineering project awards accounted for 85 per cent of all such contracts and amounted to $934,165,000.

While residential building was down from last year, a significant three per cent increase was shown in single family houses built on owners' orders for their own occupancy, with a record volume of $448,204,000.

Volume-wise the sharpest decline was shown in single-family houses built by operative builders for sale or rent, the first-half total of $675,278,000 being off 20 per cent from the total for the corresponding half of last year.

FPC Allows Texas Eastern to Sell Surplus Gas

The Federal Power Commission has authorized Texas Eastern Transmission Corp. to deliver and sell, on an interruptible basis, surplus natural gas presently available on its pipe line system to gas utility companies which are authorized firm purchasers.

Texas Eastern said the surplus, which will range from 60,290,000 cu. ft. a day in July to 24,250,000 cu. ft. daily in October, resulted from a lessened demand among some of its customer companies and because other authorized purchasers have not yet constructed facilities to connect with the Texas Eastern system.

The Commission denied Texas Eastern's proposal to sell to utility companies or other concerns not authorized as customers of the pipe line system any quantities of gas remaining after the demands of its authorized customers were met.

Texas Eastern presently sells natural gas on a firm basis to 13 companies and is authorized to sell to an additional 14.

Tin for Gas Meters Restored To Prewar Standard

The tin and antimony section, U. S. Department of Commerce, which administers tin order M-43, has amended this order, effective June 2, 1949, bringing the weight of tin plate for gas meters up to prewar standard.

Restrictions on pig tin during the war made it necessary for meter manufacturers to accept tin plate of 3.30 pounds per base box. The new order lifts the weight of tin plate to six pounds per base box. In addition, tin for use in solder has been raised from 50 to 60 per cent.

Arguments in the case for heavier tin plate for gas meters were set up by the American Gas Association Meter Committee under the chairmanship of R. J. Ott, The Philadelphia Gas Works Co., and were presented before the Tin Allocations Unit of the Department of Commerce by George H. Smith of the AGA staff.

News of the Gas Industry

Tennessee Gas Gets Okay On Expansion Program

Tennessee Gas Transmission Company has received its authorization by the Federal Power Commission to proceed with its $90 million expansion program, designed to increase the system's capacity to over a billion cu. ft. of natural gas a day, and extend its main pipeline from northeastern Kentucky to near Buffalo. The construction program as now authorized by FPC involves the construction of 450 miles of additional main line looping, 395 miles of 26 inch new line from Kentucky to Buffalo, 325 miles of laterals and 79,800 horsepower of additional compressors.

The new facilities will bring additional gas into the Appalachian area, notably east Ohio and Pittsburgh and supply 60 million cu. ft. a day for delivery to the atomic energy plant at Oak Ridge, Tenn.

The commission dismissed without prejudice Tennessees proposal to extend its system beyond Buffalo to the vicinity of Boston.

FPC Approves Rate Increase in Texas

The Federal Power Commission has accepted for filing West Texas Gas Company's proposed gas tariff and service agreement which will increase the company's rate for natural gas sold to Southern Union Gas Co. by approximately $90,000, or 35 per cent annually, on the basis of 1949 estimated sales. The increase is effective as of December 1, 1948.

West Texas Gas Co. proposed the rate increase because, due to a shortage of natural gas on the system of Red River Gas Co. in the West Panhandle Field which resulted from a proration order of the Texas Railroad Commission, it was forced to change the source of part of its gas to El Paso Natural Gas Co. with an accompanying increase in cost.

Grace Pharr Directs Home Service at Uniontown

Grace C. Pharr has joined The Manufacturers Light and Heat Co. as a home service director and will make her headquarters in Uniontown, Pa.

In making this announcement, Ray A. Newbold, manager of the company's gas distribution district No. 6, indicated that Miss Pharr would be responsible for home service activities in Uniontown, Brownsville, Charleroi, Donora and West Newton.

Miss Pharr received her Bachelor of Science degree in home economics in 1944.

Miss Pharr had been doing home economics work for the Extension Service of the Commonwealth of Pennsylvania.

F. M. Banks and W. M. Jacobs Have New Duties with Southern Calif. Gas; Other Promotions

F. M. Banks

W. M. Jacobs

Two changes in the executive set-up of Southern California Gas Co. became effective Aug. 1.

Under the new arrangement, F. S. Wade, while retaining the title of President, relinquished the title of general manager to F. M. Banks, who became vice-president and general manager. W. M. Jacobs, formerly manager of general sales, was made a vice-president.

In announcing the change, Mr. Wade stated that he, as President, continues as its chief executive officer; Mr. Banks, as general manager, assumes all duties and responsibilities which usually go with that title. Mr. Jacobs will have charge of sales, advertising and customer department activities.

The managerial post Mr. Jacobs vacated was taken by Frank Foster, who moved up from manager of residential sales and promotion to become manager of general sales. Frank Seitz was made general supervisor of appliance sales and promotion, and will be responsible for sales promotion, appliance sales and dealer contact activities which are carried on under the supervision of R. W. Dow, general supervisor of appliance sales, and H. M. O'Haver, general supervisor of dealer sales.

A post of supervisor of sales promotion will be filled by R. P. Shea, formerly of the company's Van Nuys office.

J. L. Hall, as general supervisor of residential sales, continues to direct new construction sales and related architect and builder contact and kitchen planning activities, reporting to Mr. Foster.

Mr. Banks has had a long career with Southern California Gas. He joined the organization in 1922, following graduation from Massachusetts Institute of Technology. Beginning as an engineer, he rose through a series of supervisory and executive positions to the post of general superintendent of sales in 1930. In 1934 he was made vice-president in charge of sales, and in 1948 he became vice-president and assistant general manager.

Mr. Jacobs has been with Southern California Gas since 1930. A graduate in 1928 of California Institute of Technology, he joined the company as an industrial service engineer. He was transferred to sales, and rose through sales ranks, becoming general superintendent of sales in 1937.

Mr. Foster, a graduate of California Institute of Technology, began his company career as a sales representative in 1936. He held various sales positions, and in 1941 was made manager of commercial and industrial gas sales, and in 1947 manager of residential sales and promotion.

Third Pipe Line to Chicago Planned by Peoples Co.

The Peoples Gas Light & Coke Co. of Chicago, Ill., announced recently that it has formed a new subsidiary to construct a third natural gas pipe line from the Southwest to the Chicago area.

The $100,000,000 project, scheduled for completion in 1953, will have an initial daily capacity of 340,000,000 cu. ft. That may ultimately be raised to 500,000,000 cu. ft., more than the combined capacity of the two present lines, by adding a series of compressor stations.

The utility has petitioned the Illinois Commerce Commission for authority to invest $250,000 in initial capital stock of Texas Illinois Natural Gas Pipeline Co., the subsidiary which will build the line. James F. Oates, Jr., chairman of Peoples Gas, is chairman of the subsidiary. Its president is J. J. Hendrick, who also is president of Natural Gas Pipeline Company of America, another Peoples Gas subsidiary.

The line may be in operation before 1953 if pending negotiations for natural gas reserves in the Houston area can be completed promptly, Mr. Oates asserted. Necessary commitments for pipe already have been obtained. The next step will be application to the Federal Power Commission.

The line will extend about 1,000 miles from Houston to Joliet, also the northern terminus of the two lines operated by Natural Gas Pipeline. There the gas is picked up by Chicago District Pipeline Company owned by Peoples Gas, which brings it into the city.

The line will be a 30-inch one, as compared with the two present lines, one 26-inch and the other 24-inch. Together their capacity is 484,000,000 cu. ft. of gas daily.

Plans for financing the project have not been completed. The initial $250,000 investment is designed to cover preliminary engineering and survey work.

Morris Retires as Koppers' Division Head; Herreid Is Named Successor

Retirement of W. Reed Morris as vice-president and general manager, gas and coke division of Koppers Company, Inc., and appointment of Myron T. Herreid as his successor was announced in July by General Brehon Somervell, President of Koppers.

W. Reed Morris

K. R. Hare

Myron T. Herreid

Mr. Morris, one of the nation's outstanding authorities on the manufacture of gas and coke, retired from active management on August 1, after 34 years with Koppers. General Somervell said, however, that Mr. Morris will continue to make his wide knowledge and experience available to the gas and coke industries by becoming a special consultant for Koppers to those industries.

Mr. Morris also will relinquish his duties as eastern representative of the entire Koppers Company. These duties will be taken over by K. R. Hare, manager of the gas and coke division's Seaboard plant at Kearny, N. J., General Somervell said.

Headquarters to be Moved

The Koppers President also announced that headquarters of the Koppers gas and coke division were moved to Pittsburgh. Headquarters have been at Kearny, N. J. He pointed out that Pittsburgh provides a centralized location for headquarters of the division which operates coke oven plants at Kearny, N. J., and St. Paul, Minn., and blast furnaces at Granite City, Ill. With the change, five of the six operating divisions of Koppers will have headquarters in Pittsburgh, which also is headquarters for the company as a whole.

The change of headquarters to Pittsburgh will have no effect on the operations of the Kearny plant.

Mr. Morris, whose headquarters have been at Kearny, N. J., will have offices in the Empire State Building, New York, in his capacity as Koppers' consultant to the gas and coke industry.

New General Manager Widely Known

Myron T. Herreid, who becomes vice-president and general manager of the Koppers division, has had wide experience in the gas and coke industry and has been a vice-president in the Koppers division since 1940.

A native of Blair, Wis., he joined Koppers in 1922 as a cadet engineer in Chicago. In 1928 he was transferred to the Connecticut Coke Co. as assistant superintendent, and in 1930 was made superintendent. In 1939 he was made general manager of Koppers St. Paul, Minn., plant, and a year later was appointed a vice-president.

In July, 1946, Mr. Herreid took on responsibility for the operation of the blast furnace plant at Granite City, Ill., which then was leased by Koppers from the government. In November, 1947, he was made President of Missouri-Illinois Furnaces, Inc., a company formed jointly by Koppers and the Hanna Coal and Ore Corp. to purchase the Granite City plant. Later Koppers acquired sole ownership of this plant, and it became a part of the gas and coke division.

Mr. Herreid recently completed the advanced management course at Harvard School of Business Administration.

Hare to Manage Seaboard Plant

Mr. Hare, who succeeds Mr. Morris as eastern representative for Koppers, now becomes the chief administrative officer for the company in the New York-New Jersey area. He will continue to be manager of the Seaboard coke plant.

Mr. Hare joined Koppers as sales manager of the Kearny plant in 1928, and was made manager of the plant in 1946.

Born in DeSoto, Wis., in 1888, Mr. Hare was graduated from the University of Wisconsin in 1911. His first job, shortly after graduation, was with General Electric at Schenectady, N. Y. In 1912 he went with Great Northern Power Co. in Duluth, Minn. In 1913 he was appointed chief electrician of the Northern Pacific Railroad, and three years later went to New York to become managing editor of the *Railway Electrical Engineer* and electrical editor of the *Railway Age Gazette*. In 1918 he went to Chicago as district manager and later sales manager of the C. H. Hollup Co., manufacturers of electric welding machines and appliances. He held this position until 1928 when he joined the Koppers Company.

Morris "Won't Quit Now"

The following is quoted from a "company memorandum" on Mr. Morris:

"Back in 1910, W. Reed Morris, 26 and just out of engineering school, walked on to the campus of Pennsylvania State Teachers' College to take two jobs—head of the department of chemistry and director of athletics.

"On August 1, 1949, W. Reed Morris, at the normal retirement age of 65, will give up three jobs—vice-president of Koppers Company, Inc., general managership of that company's gas and coke division, and the position of eastern representative for the entire Koppers Company.

"In the 39 years that elapsed, Reed Morris has seldom been a "one job" man. Not that any company wanted to overwork him, but jobs that were too tough for most men were accomplished in short order and with seeming ease by the tireless industrialist who was always around begging for bigger and tougher assignments.

"As a result, he is today recognized as one of the nation's leading authorities on the manufacture of gas and coke and his advice is widely sought.

"But if anyone thinks that Reed Morris is ready to sit back and rest on his laurels just because he has reached the age of 65, they are mistaken. After a month's vacation, he will take up new offices in the Empire State Building, New York, as a special consultant for Koppers to the gas and coke industries of the nation. And just so no one can say that he's finally become a 'one job man,' he'll retain his directorship of Montreal Coke & Manufacturing Co., a Koppers subsidiary."

Con-Edison Makes Changes in Engineering Setup

Electric and gas transmission and distribution engineering work of Consolidated Edison Company of New York, Inc., is being streamlined in a new organizational setup under the direction of J. Eliot McCormack, formerly staff engineer in the electrical engineering department. The new group will report to Charles W. Franklin, electrical engineer.

Mr. McCormack will head the new transmission and distribution bureau as chief distribution engineer. All of the engineering associated with transmission and distribution will be consolidated under the new bureau. Previously, this work was done by several different groups. Assisting Mr. McCormack will be Thomas C. Duncan, Thomas Maxwell, Seward A. Warner, distribution engineers, and Cladd H. Chase, superintendent.

A. E. Focke To Be President of Metals Society

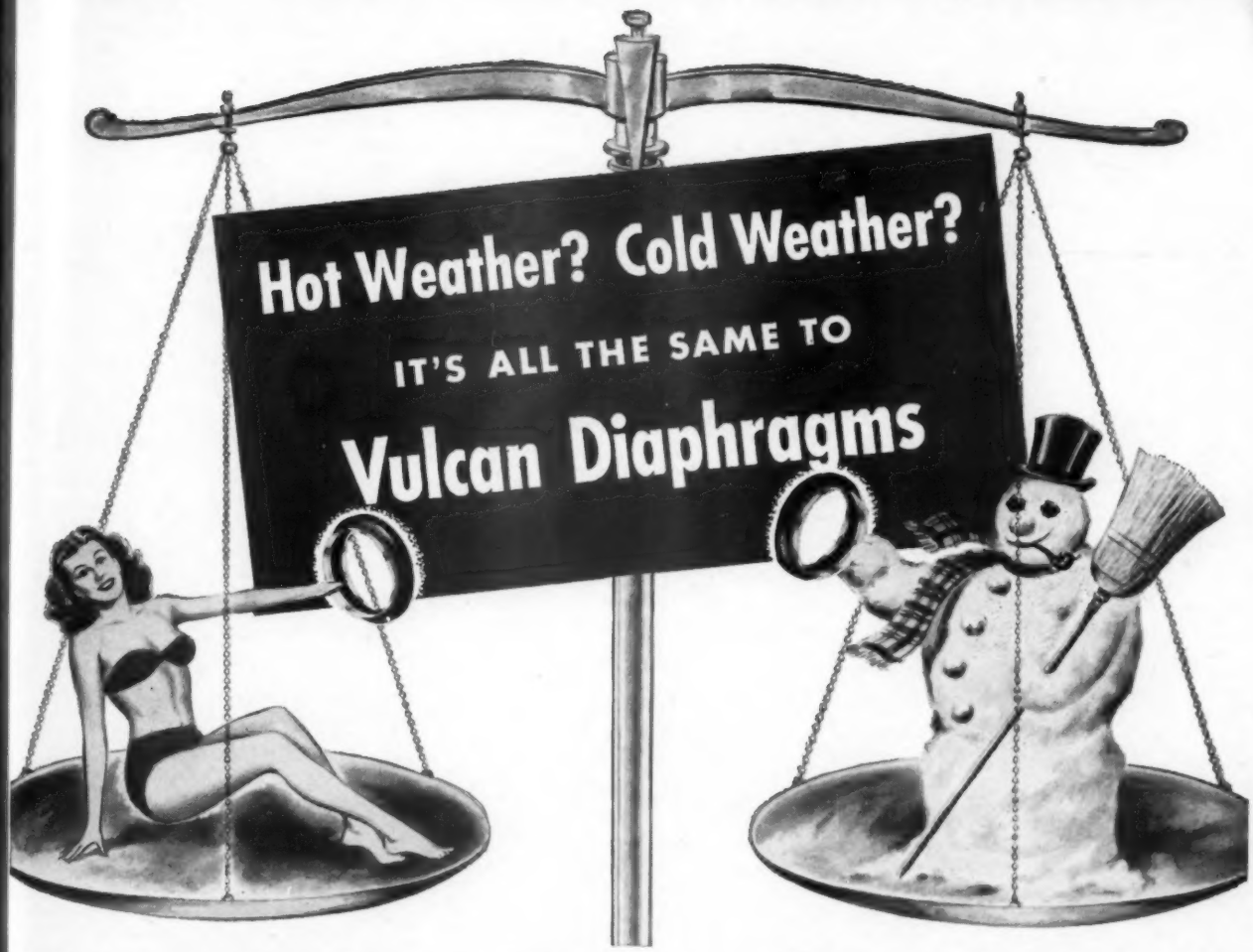
Arthur E. Focke, research metallurgist for the Diamond Chain Co., Indianapolis, Ind., will be the next President of the American Society for Metals.

Dr. Focke, who has served as vice-president during the past year, will take office on October 19, at the annual ASM meeting during the 31st National Metal Congress and Exposition in Cleveland, Ohio.

200 Extra Prizes Added to 'Court of Flame' Program

Two hundred additional prizes for the national "Court of Flame" water heater campaign, now entering its third period, have been made available by the Owens-Corning Fiberglas Corp., according to Stanley C. Gorman, director of the campaign and the sales promotion committee of the Gas Appliance Manufacturers Association, sponsors of the program.

"These merchandise prizes will be presented to winners in each region in addition to the regular prizes of $46,000 in US Savings Bonds and two Buick sedans," Mr. Gorman said.



"Vulcan Diaphragm Meters Test Better, Particularly When Meters are Exposed to the Weather"

The above is one of many enthusiastic answers to questions in a survey made among gas companies whose experiences date back ten years and longer. An important advantage of VULCAN Diaphragms is that there is no grease for heat to melt or cold to stiffen.

This same company also reports: "Use of VULCAN Diaphragms tends to reduce repair costs by eliminating diaphragm oil."

All companies contacted report expanding use of VULCAN Diaphragms.

First hand experience is the best teacher. Are you giving VULCAN Diaphragms an opportunity to prove the advantages of better accuracy and lower cost?

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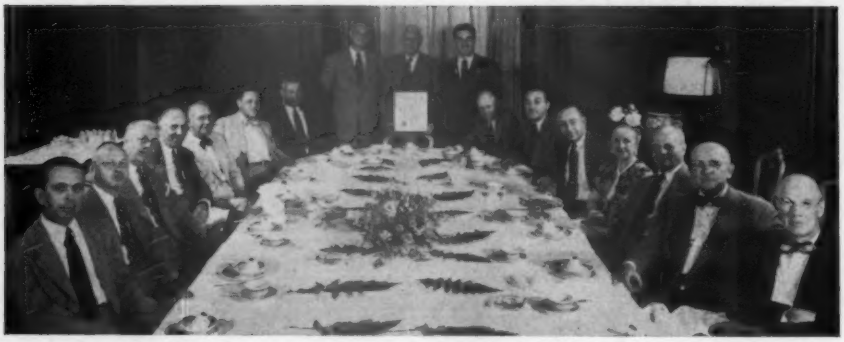


At the Conover Luncheon

Left to right around the table are: A. S. Carson, Philadelphia Electric Co.; Gordon Peterson, Public Service Electric & Gas Co.; George H. Smith, AGA; J. F. Rooney, Consolidated Edison Co. of New York; K. R. Boyes, AGA; T. S. Lever, The Philadelphia Gas Works Co.; Edward Porter, Philadelphia Electric Co.; L. A. Mayo, The Connecticut Light & Power Co.; T. J. Shanley, AGA; H. E. Cliff, Public Service Electric & Gas Co.; H. Carl Wolf, AGA; E. N. Keller, Philadelphia Electric & Gas Co.; Gladys Hanshaw, AGA; F. B. Flahive, Columbia Gas System, Inc.; O. W. Brewer, AGA, and H. C. Hasbrouck, EEI.

John L. Conover Is Guest at Testimonial Luncheon

Associates of John L. Conover tendered him a testimonial luncheon at the Hotel Biltmore, New York City, on July 6, upon the occasion of his retirement as general commercial manager, Public Service Electric & Gas Company, Newark, N. J. Mr. Conover, one of the founders of the Accounting Section, American Gas Association, was the second winner of the Charles A. Munroe Award, now known as the AGA Distinguished Service Award. The award was made for the outstanding contribution to the general interest of the gas industry in the form of the application of machine accounting systems to public utility accounting which resulted in reduced costs, improved public relations and more efficient operation.

At a recent meeting of the Managing Committee of the AGA Accounting Section, a resolution was adopted commemorating his long years of splendid service to the gas industry. An embossed copy of the testimonial was presented to Mr. Conover at the luncheon.

Navy Discovers Natural Gas in Alaska

The Navy has disclosed that natural gas has been found in commercial quantities near Point Barrow, Alaska, the northernmost inhabited spot on this continent. The discovery came in the Navy's search for gas and oil in the 37,000-acre Naval Petroleum Reserve No. 4.

The natural gas well, known as South Barrow No. 2, has been drilled six miles south of Point Barrow. A considerable deposit of gas is indicated.

"This discovery, plus the 'shows' of oil and gas tested in wells drilled in other parts of the reserve, justify the careful exploration program being conducted by the Navy in Alaska," said Commander William G. Greenman, director of Naval Petroleum Reserves, in a statement.

The new gas well is flowing in quantities sufficient to meet the fuel requirements of the naval installations at Point Barrow.

Texas Gas Opens Shreveport Office; Stanton in Charge

Texas Gas Transmission Corp. has named W. L. Stanton, petroleum engineer, to head the company's new Shreveport office.

The new office has been established in the interests of greater operating efficiency in the Louisiana-Texas area, where the company's supplies originate. All matters pertaining to gas purchase contracts, production, reserves and geology will be handled through this office.

For the past three years Mr. Stanton has been director of the Carthage Field Engineering Committee with headquarters at Carthage, Texas. After graduation from Texas A & M College, he became associated with Arkansas Fuel Oil Co., where he served for six years in various gas engineering capacities. He later joined the staff of the Arkansas-Louisiana Gas Co.

National Tube Will Build New Pipe Mill

A new electric welded steel pipe mill will be constructed at National Works of National Tube Co., McKeesport, Pa., according to John E. Goble, President of this U. S. Steel subsidiary.

The new facilities will provide for an annual capacity of 100,000 net tons of 26-inch and larger diameter electric welded and expanded steel pipe. The pipe will be produced in 40 foot shipping lengths.

These new facilities, Mr. Goble said, will enable National Tube to compete in a wider market, particularly in large diameter pipe for oil and gas pipe line construction. Construction of the mill will start immediately and production of pipe is expected by March, 1950.

The construction of the new mill represents a return to the manufacture of large diameter electric welded pipe in the McKeesport producing area of the company. Until the beginning of the War, this type of pipe had been made there, and at that time the electric weld pipe mill was dismantled and replaced by facilities to manufacture ordnance materiel such as shells, bombs, and rockets.

Pipe Line Applicants Vie for Richmond Line

Two applications filed by rival pipe line companies seek Federal Power Commission authorization to bring natural gas into the Norfolk, Va., area.

In an amended application, the Commonwealth Natural Gas Corp. of Lynchburg, Va., asks to be allowed to build a 200 mile line from the Virginia Gas Transmission Corp. line, connecting at a point in Green County to serve the Petersburg and Hopewell Gas Co., Virginia Electric and Power Co., Portsmouth Gas Co., Suffolk Gas Co., and the cities of Richmond and Charlottesville. The estimated cost is $5,041,900.

Virginia Natural Gas Co., a newly formed company, with head offices in Richmond, applies for permission to serve substantially the same area, through a 153 mile line, obtaining its natural gas requirements from the Trans-Continental Gas Pipe Line, now under construction. Virginia Natural wants to connect with Trans-Continental at Buckingham, Va., the line to cost $5,377,972.

All of the communities mentioned are now using manufactured gas.

Regional Meetings to Start 'Old Stove Round-Up'

A series of eight regional meetings are to be held during August and early September to launch the American Gas Association National Old Stove Round-Up, a campaign in which nearly 400 gas utilities, 62 gas range manufacturers, and approximately 70,000 gas range dealers will coordinate their efforts to replace obsolete gas ranges with modern gas cooking appliances.

Carl H. Horne, vice-president, Alabama Gas Corp., Birmingham, and chairman, domestic range committee of the AGA, has announced that regional meetings are scheduled as follows: Aug. 1, Atlanta, with Mr. Horne presiding; Aug. 15, Chicago, with H. D. Valentine, sales promotion manager, The Peoples Gas Light & Coke Co., presiding; Aug. 16, Kansas City, with George D. Wells, new business manager, Gas Service Co., Topeka, presiding; Aug. 17, Center City, Minn., W. L. Hayes, general sales manager, Montana—Dakota Utilities Co., presiding; Aug. 19, Los Angeles, John L. Hall, general supervisor residential gas sales, Southern California Gas Co., presiding; Aug. 23, Ft. Worth, J. O. Jackson, appliance and sales promotion director, United Gas Corp., Houston, presiding; Sept. 6, Boston, John A. Hiller, sales manager, Portland Gas Light Co., presiding; and Sept. 9, New York City, under the direction of a sales executive of a local gas utility company.

Promotional and sales representatives of AGA and GAMA will participate, outlining the national and trade advertising, promotional and publicity support that will be forthcoming from the two associations.

It is estimated that nearly half of the 25,770,000 gas ranges now in use are more than ten years old, while approximately 25 per cent of the total gas ranges in use are more than 15 years old. It is fully expected that the coordinated campaign will appreciably lift sales of gas ranges for 1949 and will carry over to initiate a healthy increase in 1950.

Texas Gas Has 200 Miles of New Line in Ground

Texas Gas Transmission Corp. has announced that construction crews working on the 800-mile Texas-to-Ohio pipe line have put approximately 200 miles of pipe in the ground, and are working on schedule on the 26-inch project.

W. T. Stevenson, executive vice president, declared that Texas Gas expects to have the line in preliminary operation by the end of the year, in time to meet the winter's cold weather.

Mr. Stevenson's remarks came as Texas Gas observed the twentieth year of operations of its predecessor companies, Memphis Natural Gas Co. and Kentucky Natural Gas Corp.

After completion of the new line, the Texas Gas system will include 2,366 miles of pipe line, compared with the present 1,501 miles. Annual sales are expected to reach approximately 150,000,000,000 cu. ft., an increase of 100,000,000,000 cu. ft. a year over present sales. Compressor stations along the pipe line system will number 17, as against eight. The installed compressor horsepower will total 97,915, compared to the present total of 29,115 horsepower.

The initial capacity of the new pipe line at the end of this year is expected to reach 304,000,000 cu. ft. of gas a day. By the Spring of 1950, upon the completion of additional facilities, the capacity of the 26-inch line will reach 400,000,000 cu. ft. a day, bringing the company's total daily delivery capacity to about 650,000,000 cu. ft. a day.

Work Starts on 'Super Inch' Line of P G & E

Ground was broken on June 29 for the "Super Inch" pipeline of the Pacific Gas and Electric Co.—506 miles in a 1600-mile system that will bring natural gas from Texas and New Mexico to northern and central California.

The "Super Inch" will be 34 inches in diameter—the largest diameter pipeline built for high-pressure transmission.

Construction crews and record trenching machinery launched the project near Llanada, in the Panoche Hills 33 miles south of Hollister. There a new 32½-ton trencher 50 feet long by 10½ feet wide—the largest wheel type trench digger made—began work on the pipeline excavation, which will be 44 inches wide and 5½ feet deep.

The 1600-mile pipeline system will cost the P. G. and E. and the El Paso Natural Gas Company of Texas approximately $150,000,000. The El Paso company's section extends from the gas field to the California-Arizona border near Needles and the P. G. and E. will build from Needles to Milpitas.

First deliveries of 150 million cu. ft. of gas per day are scheduled to begin on January 1, 1951. It is planned that deliveries will pump to 300 million cu. ft. per day in 1952 and still further increases are contemplated thereafter. The 300 million cu. ft. per day, due in 1952, will be more than half the present average load of the system.

FPC Is Asked to Authorize Line to Louisiana Fields

United Gas Pipe Line Co. has asked the Federal Power Commission to authorize construction of a pipe line project with a capacity of 112,000,000 cu. ft. a day which would connect four gas fields in southwestern Louisiana with the company's system in eastern Texas.

The company said the additional gas would be made available to the Beaumont-Port Arthur area which it now serves in Texas. According to the application there is at present no outlet for the gas produced in the four fields, which have an estimated total proved natural gas reserve of approximately 339 billion cu. ft. United Gas said it has entered into a contract to purchase the gas from Magnolia Petroleum Co.

The company proposes to finance the project — estimated cost $1,792,000 — from cash on hand or through a loan from its parent, United Gas Corp.

Cornell Heads Water Heater Division of A. O. Smith

F. S. Cornell has been named manager of the water heater division of A. O. Smith Corp., according to an announcement by L. B. Smith, vice-president of the company. Mr. Cornell had been assistant manager of the division, which operates the Kankakee works of the company at Kankakee, Ill.

F. S. Cornell

Prior to Mr. Cornell's move to Kankakee last spring, he had wide administrative experience at the Milwaukee works, serving on a variety of manufacturing, planning, research and sales committees.

Mr. Smith will return to the Milwaukee headquarters where he will assume administrative duties.

Pipe Line to Boston Planned by New Company

Eastern Natural Gas Corp., a newly formed organization, has filed application with Federal Power Commission for authority to construct and operate a 292-mile 24-in. natural gas line, with approximately 200 miles of lateral line, between Phoenixville, Pa., and Boston.

The application states that the new corporation plans to purchase its gas from unnamed existing transmission systems and sell to distributors to serve among others, Norwalk, Danbury, Bridgeport, New Haven, Naugatuck, Waterbury, Meriden, New Britain, Hartford, and Middletown, Conn.; Providence and Woonsocket, R. I.; and the following areas in Mass.: Springfield, Webster, Worcester, Lowell, Lawrence, Salem, Boston, Taunton and Fall River. Total cost of the project would be approximately $28,000,000, the company told FPC.

William Lawlor, Jr.

C. H. Zachry

Texas Public Service Merged Into Southern Union Gas

The merger of Texas Public Service Co. into Southern Union Gas Co. became effective July 21 at a meeting in Chicago of Southern Union's board of directors. The action of the board of directors was taken after the required two-thirds majority of the stockholders of both companies approved the merger at separate meetings in Dallas on July 14, according to C. H. Zachry, of Dallas, Southern Union President.

Mr. Zachry also announced that at the director's meeting of his company on July 21, William Lawlor, Jr., of Austin, Texas, was elected a vice-president of Southern Union. Mr. Lawlor had served as vice-president of Texas Public Service.

Mr. Zachry further stated that Austin, Galveston, Port Arthur, Griffing Park, Lakeview, Nederland, Pear Ridge, Port Neches and Port Acres, Texas, formerly owned by Texas Public Service, will be operated as the South Texas district of Southern Union, with Mr. Lawlor supervising the operations of the nine cities out of Austin, where he will continue to maintain his office. Paul E. Nicholls will remain in charge of operations in Galveston, and John H. Pritchard will continue to operate the Port Arthur, Griffing Park, Laveview, Nederland, Pear Ridge, Port Neches and Port Acres properties.

Upon completion of the merger, Southern Union serves 160,000 customers in 41 towns and cities in Texas, New Mexico and Colorado. The combined assets of the company are more than 40 million dollars, and the number of employees totals more than one thousand.

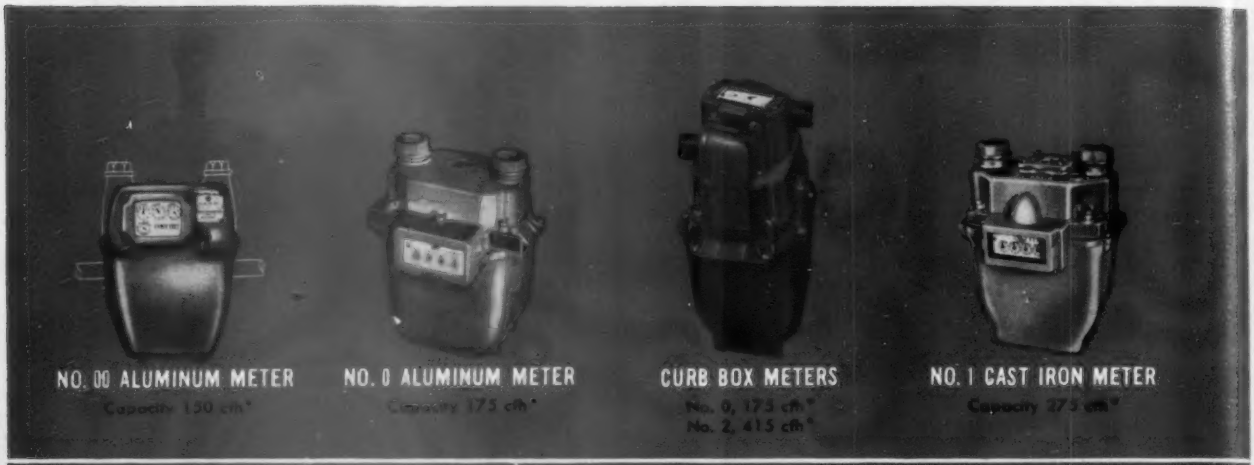
Home office of the 21-year-old Southern Union is in the Burt Building in Dallas.

Con-Edison Issues Report to Its Employees

The story of keeping ahead of 1948's record-breaking demands is told by Consolidated Edison Co. of N. Y. in a report which has been distributed to its 30,000 employes.

The maturity and length of service of Con Edison employes are noted, more than 73 per cent having fifteen years of service and no fewer than 255 employes still active having forty or more years.

The report also details the company's benefits program, for which there was an outlay of $17,767,681. These "extras"—including such items as pensions, sick pay, insurance, health care and so on—averaged in cost $11.28 a week for each employe.



10 LT TIN METER
Model 10-300, 300 cfh*
Model 10-425, 425 cfh*
Model 10-500, 500 cfh*
5 LT TIN METER
Model 5-150, 150 cfh*
Model 5-200, 200 cfh*
Model 5-250, 250 cfh*
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NO. 2½ CAST IRON METER
NO. 3 CAST IRON METER
NO. 4 CAST IRON METER
NO. 4½ PRESSED STEEL METER
NO. 5 PRESSED STEEL METER
FLOW INDICATING METER
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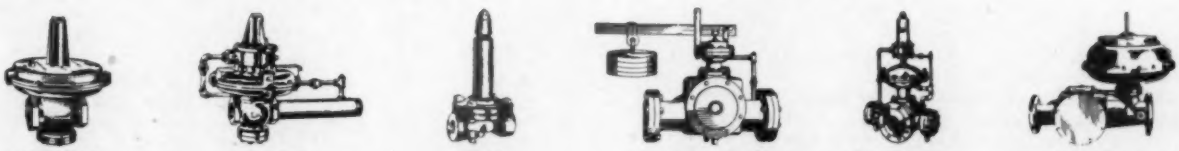
Rockwell-Emco builds everything from tiny rate-of-flow meters to giants of the diaphragm displacement type having capacities up to 5,000* cfh. Rockwell-Emco gives you the widest selection of meter types; the greatest latitude in sizes. That means these meters can be accurately specified for your loads in terms of the conditions under which they must operate.

All Rockwell-Emco meters are *measurement engineered* for long service life. They are more economical, too, from the standpoint of sustained accuracy and low cost of repairs.

Our engineering staff and field representatives will be glad to help you with your metering problems. Just drop us a line.

**All meter ratings are given for 0.60 sp. gr. gas at ½ in. pressure absorption.*

GAS PRESSURE REGULATORS FOR EVERY REQUIREMENT



Crawford Regulator | "1001" Regulator | Field Regulator | Lever & Weight Balanced Valve Regulator | Pilot Loaded Balanced Valve Regulator | Low Pressure Balanced Valve Regulator

The air compressor operates earth augur, paving breakers and other tools. Above the machine is uncovering dirt over a pipe where a leak has been detected. At the left the machine is installing an anode to prevent pipe electrolysis.

Crane Type Truck Fitted as Leak Repair Unit

The Wisconsin Gas and Electric Co., Racine, Wis., has fitted one of its crane type trucks so that it operates as a complete leak repair unit. No additional vehicles are needed. The company mounted an air compressor on the chassis to power pneumatic tools and earth auger. Tools, pipe fittings, leak caps, etc. are housed in a special body behind the truck cab.

In addition to leak repair work the crane is used to unload pipe from freight cars and to set pipe. The truck, known as "Hydrocrane" is built by the Buckrus-Erie Co., South Milwaukee, Wis.

New Control System for Gas Heat Develops Own Power

A self-contained automatic control system for gas-fired heating plants has been developed by the Minneapolis-Honeywell Regulator Co., C. D. Lyford, vice-president in charge of the gas controls division, has announced.

The new system generates its own electricity to operate a thermostat and automatic gas valve. Thus it may be used in non-electrified rural areas, and will prevent heating interruptions despite power failure in areas where electricity is available.

The operation of the device is based on the electrical phenomenon that two unlike metals joined at one end can convert heat energy into electrical energy when the metals are subjected to flame. It is composed of 25 thermocouples and generates 400 to 500 millivolts, although the system will operate safely on an output as low as 200 millivolts.

The heat leveling thermostat contains a heat anticipator which uses electrical energy supplied directly by the unit. This device, Lyford said, provides extreme accuracy of control by supplying heat to the thermostat, thus preventing over-shooting. The unit itself is bellow-actuated and uses a mercury switch to eliminate the possibility that dust or oxidation might impair the efficiency of the thermostat.

The diaphragm valve employs a self-contained polarized relay for added power to open and close the gas flow to the burner. It may be used with all types of gas.

Nordstrom Completes Valve for 34" Pipe Line

Weighing 15,900 lbs., the largest lubricated plug valve ever constructed has been completed and undergone tests in the Nordstrom Valve plant of Rockwell Manufacturing Company at Oakland, Calif. Twelve of these valves are being manufactured for the initial section of Pacific Gas & Electric Company's 34" gas pipe line from the Colorado River into the San Francisco bay area.

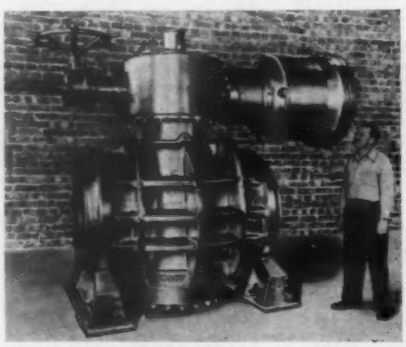
Ten of the valves will be 30 x 34 inch with elevated gearing, and two of the same type will have electric motor control. The valves are designed with butt-welding ends and rated for 1000 lbs. wog.

More than 1600 man-hours were invested to develop the first of these valves, including time for designing, machining and testing.

The valve with cylinder operating unit is 81½ inches high and the end-to-end dimension is 59 inches. Weight of the plug alone is 1000 lbs.

The cylinder is designed to operate the valve under unbalanced pressure equal to the maximum working pressure of the valve, with not more than 75 lbs. differential pressure across the cylinder.

Maximum thickness of the body wall is three inches and that of the throat wall is 3⅛ inches.



One of the 12 large valves being manufactured for the PG & E pipe line

C. A. Young, of American Stove, Retires; Velte Takes Over

Charles A. Young, who has represented American Stove Co. in the New York area since 1910, will retire as eastern sales division manager September 1 at the age of 70, according to an announcement by Marc W. Pender, vice-president in charge of sales.

Mr. Young is a familiar figure in the gas industry, and has long been active in the AGA, and the New England, New Jersey, and Pennsylvania gas associations.

He was born at Monmouth, Ill., and graduated from Burdett's Business College, Boston. He came to New York in 1910 as sales representative for one manufacturing division of American Stove and progressed to his present position in charge of all of the company's activities in the eastern sales division.

George P. Velte, who has been with American Stove Company since 1919 and manager of the company's Boston office since 1930, will become eastern sales division manager, in charge of sales in eastern New York, northern New Jersey, and New England.

Mr. Velte, who was born in Brooklyn in 1890, began selling stoves in New England for E. B. Colby and Co. in 1909. He was assistant to the new business manager of Brooklyn Union Gas Co. from 1914 to 1919. He became New England representative for one of American Stove Company's manufacturing divisions in 1919, was made manager of that division's New York office in 1927, and in 1930 went to Boston to manage the Boston branch sales office.

J. J. Edwards, supervisor of the company's coal, combination, and kitchen heater range sales in the central sales division, Cleveland, will be transferred to Boston to replace Mr. Velte.

Oklahoma Ass'n Meets Oct. 7

Richard W. Camp, chairman of the Gas Division of the Oklahoma Utilities Association, has announced the annual one-day conference of the Gas Division will be held October 7, Biltmore Hotel, Oklahoma City.

Bulletin on New Absolute Pressure Recorder

A bulletin on the new "Series 500 Absolute Pressure Gauges" has been published by The Bristol Co.

It describes the instrument and gives data on the new principle of operation employed, which makes it possible to accurately record and automatically control absolute pressure within a scale range as low as zero to 20 millimeters of mercury absolute.

Copies of the bulletin, No. G620, are available from The Bristol Co., Waterbury 91, Conn.

Wall Heater Fits Between Standard Center Studs

The Coleman Company, Wichita, Kansas, announces a new circulating gas-fired heater designed for wall installation in new or old houses. It is constructed to fit between two standard center studs.

The unit has an input rating of 25,000 Btu and warm air flow of 8,000 cu. ft. per hour.

Large Propane Storage Plant to Be Built in New Haven

H. Emerson Thomas & Associates, Inc., Westfield, N. J., has signed a contract with the Connecticut Coke Co., New Haven, Conn., for erecting thirty 30,000 gallon (water capacity) propane storage tanks together with all pipe lines, unloading equipment, and two large volume steam heated vaporizing assemblies.

The engineering and installation will be under the direct supervision of Paul E. Peacock, Jr., vice-president of H. Emerson Thomas & Associates, Inc., while the handling for the Connecticut Coke Co. will be by W. C. Wardner, superintendent, and E. W. Montgomery, asst. superintendent.

The installation will augment the present supply of coke oven gas to take care of increased demand in the New Haven area. The contract calls for completion of the installation within 120 days.

The installation will be one of the largest of its type to be installed during 1949.

GE Advances W. A. Mulcock in Heating Division

William A. Mulcock has been appointed manager of sales administration and forecasting of the automatic heating division of General Electric Company's air conditioning department, Bloomfield, N. J., according to H. J. Wines, automatic heating division sales manager.

In his new post, Mr. Mulcock will be responsible for customer service, coordinating sales with production, and compiling sales forecast data. He will also supervise outside warehouse operations.

Prior to his new appointment, Mr. Mulcock was manager of commercial service, a position he has held since 1947.

G. F. Walker with Milwaukee Gas Specialty in East

Gordon F. Walker

Gordon F. Walker has been assigned to represent the Milwaukee Gas Specialty Company in the Eastern territory with headquarters at Philadelphia, according to John A. Wolff, sales manager of the company. Mr. Walker's territory includes all of New England, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and North and South Carolina.

Mr. Walker, a mechanical engineer, has had several years experience of design and liaison engineering in the machine trades. After completing his studies at the Universities of Wisconsin and Nebraska, he was engaged in structural and mechanical design with Glenn L. Martin, Nebraska company, and Allis-Chalmers Manufacturing Co., of Milwaukee. Following service in the Navy, he joined the sales engineering staff of Milwaukee Gas Specialty where he was employed in developmental work.

Marsteller & Melius Named Rockwell V-P's

Election of Wm. A. Marsteller, Chicago, and Robert P. Melius, Milwaukee, as vice-presidents of Rockwell Manufacturing Co., Pittsburgh, has been announced by W. F. Rockwell, Jr., President.

Mr. Melius was recently placed in charge of sales for the newly-created power tool division of Rockwell. He has been with the Delta Manufacturing Division for 19 years, and has been Sales Manager of the Delta Division since 1935.

Mr. Marsteller for the past several years has been manager of advertising and market research for the company, as well as vice-president of Edward Valves, Inc., East Chicago, Ind. He is completing a two-year term as President of the National Industrial Advertisers Association.

T. F. Loughry Now Sales Mgr. Gas Production Division of Surface Combustion

Theo. F. Laughry

The appointment of Theodore F. Loughry as sales manager of the gas production division of Surface Combustion Corp., Toledo, Ohio, has been announced by C. B. Phillips, vice-president in charge of sales. Mr. Loughry has been with Surface Combustion and affiliated companies since 1924 when he was graduated from Carnegie Tech with a B.S. in Mechanical Engineering.

After graduation, Mr. Loughry was employed in the gas division of the Public Service Company of Colorado. He then spent eight years at the Research Institute of Combustion Utilities Corp. in New York City. This activity was particularly concentrated in the field of industrial gas production and utilization. Mr. Loughry was transferred, in 1934, to the New York district office of Surface Combustion where he served as district industrial sales manager.

Returning to the company in 1946 after four years military service, he was assigned to the Philadelphia office in charge of the heat treat sales there.

When Surface Combustion entered the field of gas production catalytic cracking units, he was assigned to handle sales for this activity, maintaining his base of operations in Philadelphia. Now he will operate from the company's Toledo offices.

Johnson Is Sales Promotion Manager, Florence Stove

Ronald G. Johnson has been appointed sales promotion manager of Florence Stove Co., according to C. Fred Lucas, vice-president in charge of sales. Mr. Johnson will head a newly created department which is part of a sales expansion program.

Mr. Johnson joined Florence four years ago as assistant advertising manager.

Walter E. Bimm

T. J. Reynolds, Jr.

Roper Promotes Two and Adds Field Men

E. Carl Sorby, vice-president, Geo. D. Roper Corp., Rockford, Ill., recently announced additions and promotions in the gas range division. Walter E. Bimm has been named assistant sales manager; T. J. Reynolds, Jr., has been appointed manager of the service department; R. A. Koehler, Jr. will assist district manager R. E. MacIntosh in the New England territory; Max G. Zeller will work with division manager J. M. Phillips in St. Louis and Eastern Missouri; and Philip D. Kellner will work with division manager R. R. Chapman in Chicago.

Since joining Roper fifteen years ago, Mr. Bimm has come up through the ranks of the advertising and sales departments. He served with the Army Air Force during World War II. Following his release from the service, he resumed his duties with the sales department. He will work closely with sales manager Norman C. Kreuter in administering sales problems.

Mr. Reynolds came to Roper in 1934. Since that time he has been associated with the purchasing, billing and sales departments. After returning to Roper from the Army Air Force, in which he served for three years, Mr. Reynolds took charge of Roper's repair department. In his new position, he will coordinate the efforts of all repair service and field service activities.

Mr. Koehler's Army service of nearly four years included duty in Europe with the 275th Infantry. Since the war Mr. Koehler has been active in selling major appliances.

Mr. Zeller is a graduate of the University of Iowa where he studied advertising, marketing, and allied subjects. During the war, he was a pilot in the Army Air Force, and before the war he had seven years sales experience with the Central Indiana Gas Co.

Mr. Kellner has been associated with the sales department of Roper in Rockford. Prior to that he was a member of the Army Air Force.

G. D. Wells, jr., Joins Caloric as Sales Representative

Caloric Stove Corp., Philadelphia, has appointed George D. Wells, Jr., of Topeka, factory sales representative in Kansas and western Missouri, according to Julius Klein, vice-president and director of sales.

Mr. Wells is the son of George Wells, Sr., new business manager, The Gas Service Co. at Topeka. The younger Mr. Wells is a graduate of Washburn University with the degree of Bachelor of Arts in Business Administration.

Norton Keys to Long Generator Life:

Crystolon key brick for door arch

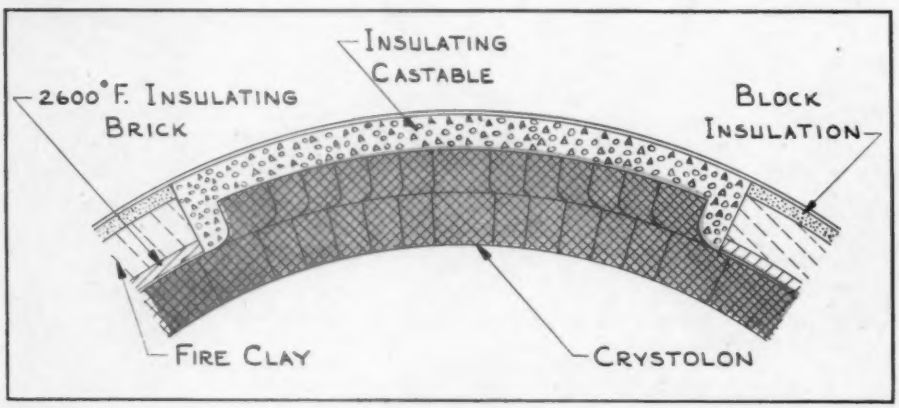
1. CRYSTOLON* Shapes

Crystolon shapes are made of the highest quality Norton silicon carbide plus a minimum of refractory bond. They are true to size and shape. Crystolon shapes possess high refractoriness and great strength at elevated temperatures and they have a remarkable resistance to abrasion, to spalling and to both the chemical and physical action of molten slag. Slag may adhere to the surface to a very limited degree but what does stick is very easily removed without harming the surface of the shape.

*Trade-mark Reg. U. S. Pat. Off.

2. Correct Design of Door Arch

Norton doors have a record of long life and trouble-free service due to an original design which has proved its serviceability in all Norton installations over a period of more than 16 years. The special Norton door arch shapes are radial in two directions to provide maximum wedging or keying. Furthermore, they are cut away (see illustration above) at the rear to reduce heat transfer to the shell. Due to the rugged design of Crystolon shapes, door arches properly installed usually last 6000 to 8000 hours.



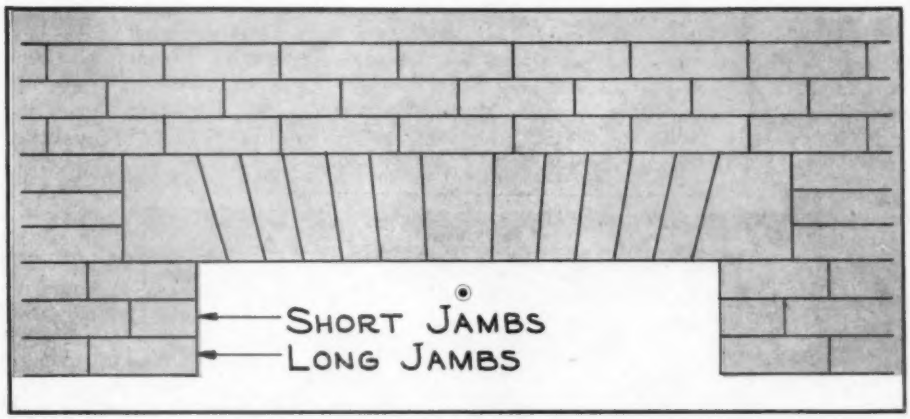
Cross-section drawing of Crystolon door arch shapes and insulating materials

NORTON Norton Company • Worcester 6, Mass.

3. Installation Know-How

Typical Norton generator lining

The experience of Norton refractories engineers in directing the installation of hundreds of gas generator linings around the country has developed a fund of important knowledge about the proper design and installation of Crystolon linings. For example, door arches should be set in place dry with the key brick raised about 1½". The skew brick must be level both vertically and horizontally to insure proper fitting of the arch shapes. The brick work between the doors should next be cemented in place, then the special arch shapes are removed, cemented and replaced, still leaving the key brick to be driven in place.



Drawing showing face of Norton Crystolon shapes with thirteen arch shapes in position

Free Booklet

Many helpful hints (like that on proper door treatment given above) may be found in a booklet just prepared by Norton refractories engineers and which we will be glad to send you at no obligation. Write for our booklet "Relining and Repairing Gas Generators" to Refractories Division, Norton Company, Worcester 6, Mass.

Can't be beat for handling heat!

NORTON®
REFRACTORIES

Louisiana Leading

(Continued from page 9)

gas under contract and will start taking when their currently authorized lines are completed.

Consistently, year by year, the natural gas industry has grown in Louisiana. There were 973 billion standard cu. ft. produced in 1948, and it is expected that this figure will pass the trillion market in 1949. The 1948 production represented an increase of 134 billion standard cu. ft. over 1947.

Of this total production in 1948, approximately one-half, or 488 billion cu. ft., was produced in the Southern and Coastal areas of the state.

South Louisiana experienced 308 dry wells during 1948, 87 of which were wildcats. One of every 5.2 wildcats in South Louisiana was successful, and in the drilling of field wells, 68 per cent of those drilled were producers.

Twenty-seven new fields were discovered in the area during the year, 13 of which were oil fields and 14 gas and condensate fields. There has been an acceleration of geophysical activity offshore, but the report states that the reserves in this particular area are impossible to estimate from data currently available.

With the discovery of gas in the tidelands, producing oil companies are now discussing the feasibility of a cooperatively owned gathering system to serve all tideland gas production. The project is at present only in the talking stage; but conversations revolve around a line in which ownership and expense would be divided on a prorated basis, with the gathering line to run the length of Coastal Louisiana.

Confronted with its tremendous total of unsold gas reserves, and with the likelihood that these reserves will continue to increase as drilling for oil, both inland and offshore, continues, Louisiana has at last reversed its policy of resisting the exportation of natural gas from the state.

The Louisiana position has always been subject to considerable controversy, but since 1942, and particularly during the Federal Power Commission's Docket G-580 investigation of the natural gas industry in 1945, the state's political regime gave every indication of an unfavorable attitude toward long distance natural gas pipe lines. Louisiana appearances before the FPC in opposition to the issuances of pipe line certificates were commonplace, even when the proposed lines were eagerly sought for by the owners of gas production within the state.

The wisdom of the Louisiana policy may have been debatable, but it cannot be denied that the gas retained in the state as a result of successful resistance to export, will now command a higher price when and as it finds a market.

The Crowell study notes that:

. . "There is more bidding going on for gas in Southern and Coastal Louisiana than in any like area in the United States. There is the opportunity to get a price more in keeping with what the producer thinks gas is worth. . . . "

On the basis of current negotiations now going on between producers and potential pipe line customers, this observation of the oil and gas consultant appears to be borne out by the terms being asked. The asking price for a large block of reserves currently being negotiated for by a new pipe line is in the nature of 10 cents per thousand standard cu. ft. for the first five years, a guaranteed escalation of one cent per standard Mcf every five years over a 20 year contract period, and protection for the producer in the form of a guarantee that if the going price in the field exceeds that in his contract, he will be paid the higher price. Producers are also insisting on being paid for gas measured on the same pressure base as it is sold, which in effect would multiply the field price by 1.2 in comparison with that sold on measurement bases now in use in most fields.

The report draws the conclusion that in Southern and Coastal Louisiana: "(1) there is an abundant supply of natural gas, the nation's largest, sufficient to meet all foreseeable demand for many decades; (2) there is neither necessity nor excuse for hoarding gas; (3) there is a clear and current need for an expanded market which would lead to balance between supply and demand and consequently more equitable prices both to producer and ultimate consumer; and (4) Louisiana needs more pipe lines."

Desulfo Unit Being Built for Hoosier Gas

The Dallas office of Stacey-Dresser Engineering has announced through O. E. McCullough, district manager, that another Stacey-Dresser Desulfo unit is now being built. This unit, which is for the Hoosier Gas Corp., Vincennes, Ind., will be in operation in September and will process up to 3,000,000 cu. ft. of gas a day, reducing the hydrogen sulphide content of the gas to one grain per 100 cu. ft.

The general office of Stacey-Dresser Engineering, which is one of the Dresser Industries, is in Cleveland, Ohio.

STAMANCO EXPERT HOLDER INSPECTION

-Saves You Money!

Even though your gas holders have had regular attention from your company maintenance crew - it will pay you to have an occasional inspection by STAMANCO Inspection Specialists who are --

EXPERTS in the prevention of trouble development

EXPERTS in the detection of present troubles

EXPERTS on how to best repair damage done

STAMANCO Inspection Service can save you money by extending the life of your present holders....by reducing the possibility of shut-downs due to corrosion and mechanical troubles....by correcting factors which would eventually cause expensive major repairs. We shall be pleased to talk your holder maintenance problems over with you.

The STACEY MANUFACTURING Co.
SINCE 1851
CINCINNATI 16, OHIO

GAS HOLDERS • HI-PRESSURE TANKS • PURIFIER BOXES

ENGINEERS • FABRICATORS • CONSTRUCTORS

An Independent Organization Not Affiliated With Any Other Builders of Gas Holders

CONVENTION CALENDAR

September

6-8 *Mid-West Gas Ass'n. School and Conference,* Iowa State College, Ames, Iowa.

7-9 *Pacific Coast Gas Ass'n.,* Santa Barbara, Calif.

9 *New Jersey Gas Ass'n.,* Monmouth Hotel, Spring Lake, N. J.

9-10 *Maryland Utilities Ass'n.,* Fall Conference, Virginia Beach, Va.

19-21 *National Butane-Propane Ass'n.,* St. Louis, Mo.

26-28 *Controllers Institute of America,* San Francisco, Calif.

October

11-14 *American Standards Ass'n.,* Annual Meeting, Waldorf-Astoria, New York.

13-14 *Texas Mid-Continent Oil & Gas Ass'n.,* Annual Meeting, Rice Hotel, Houston, Texas.

17-20 *American Gas Ass'n.,* Annual Convention, Chicago, Ill.

24-28 *National Safety Congress,* Morrison Hotel, Chicago, Ill.

26-28 *National Metal Trades Ass'n.,* Palmer House, Chicago, Ill.

31 *Independent Natural Gas Ass'n. of America,* Annual Meeting. Baker Hotel, Dallas, Texas.

November

7-9 *American Petroleum Institute,* Stevens Hotel, Chicago, Ill.

21-23 *Wisconsin Utilities Ass'n.,* Annual Meeting, Milwaukee, Wisc.

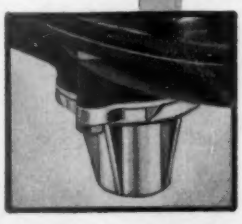
DETROIT'S "FIRST"
IN CONVENIENCE · COMFORT · QUALITY
In the heart of the downtown, office, theater, and shopping area. Friendly, courteous service to make your stay in Detroit a pleasant memory. The Tuller Coffee Shop or Cafeteria for excellent Food modestly priced The Hotel Tuller, Detroit's largest, is the place to stay
VISIT OUR Cocktail Lounge
ONE OF DETROIT'S FINEST
800 ROOMS WITH BATH FROM $2.75
Hotel Tuller
FACING GRAND CIRCUS PARK
RICHARD C. HODGES, Manager

Reynolds
GAS REGULATORS
. . . ARE BUILT TO MEET YOUR ACTUAL OPERATING CONDITIONS

Whether your requirement is a matter of ounces or hundreds of pounds pressure — Reynolds will design, engineer and build the proper type and size regulator to meet your actual operating conditions. Reynolds regulators are proved by performance in factory supervised tests under actual operating conditions. Call on Reynolds to assist in solving your gas control problems.

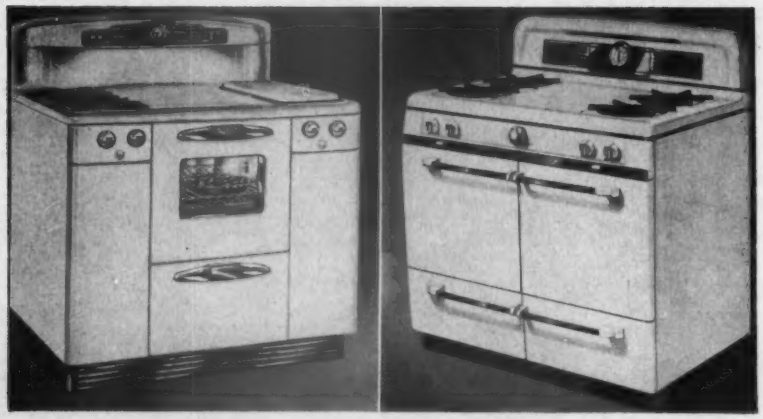
REYNOLDS NO-LOSS MERCURY SEAL FOR ALL SERVICE REGULATORS

Reynolds new exclusive Mercury Cut Seal is held rigidly to the body by two screws. In case the seal blows, the patented design insures recovery of more than 95% of the mercury.



GAS CONTROL SINCE 1892

Reynolds
GAS REGULATOR CO.
ANDERSON · INDIANA · U. S. A.



At the left is the new Tappan "deLuxe" model which made its debut at the July Furniture Market at Chicago. At the right is one of the models in the "Custom Master" series of new Detroit Jewel and Garland gas ranges.

Appliance Venting

(Continued from page 18)

spill out of the draft diverters. Air at the date of this writing is still free and not subject to taxation. Perhaps if someone would corner the supply and start doling it out for a cash consideration or the government should bring it within the scope of the luxury tax rulings we would gain a better appreciation of its value and use more of it.

It should be a national requirement that *all central heating plants and appliances used as such, regardless of type of fuel used, must have air supplied for combustion and venting products of combustion independent of the inhabited space.* This is only a simple safety requirement but it is basic.

You may say that is alright for recent or new construction but certainly does not apply to the millions of existing homes that were not built in this manner. It makes no difference. The installation of new heating equipment may be only the first step in modernization. A closet type central unit may be installed in the home with a grill in the door and one above the door to provide air for combustion and venting and plenty of air is available at the time of installation. The house is then insulated, caulked and weatherstripped. The kitchen is modernized. There are few magazines today which do not carry advertisements for kitchen exhaust fans. Can you imagine an appliance store salesman warning a customer that air must be supplied to any space where the exhaust fan is installed? That exhaust fan, however, can reverse the action of that furnace flue with the products of combustion released in the home. Gas heating will be held responsible for the resulting condition.

Every specification we write must be based on the assumption that negative interior pressures exist or can be present in the home. It is a relatively new problem but one that we must cope with now and in the future.

We feel sure that the reason negative interior pressures ranked fourth instead of first as cause of inadequate venting may have been because so many of the cases investigated concerned floor furnace installations in basementless houses where of course interior negative pressures have no effect.

"The Gem of Them All"

COLUMBIA CONVERSION GAS BURNERS

More Popular Than Ever

With Home Owners and Dealers

DEALERS SAY—Columbia Nutipe Burner has a common sense design. Closely duplicates operation of appliance when solid fuel was used. Easy to install. Seldom requires service.

HOME OWNERS SAY—Gives quick heat transfer and earlier delivery of heat to rooms. Has tamper-proof controls and quiet operation.

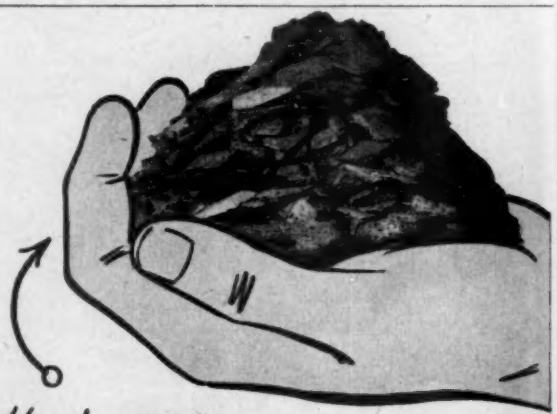
MODEL P-ZE

shown here is designed for use in warm air furnaces or round type boiler where grates are removed.

Send for free folder giving complete instructions for installing

THE COLUMBIA BURNER CO.

729 Ewing Street • Toledo 7, Ohio



Here's your purification material

CONNELLY IRON SPONGE

HIGHER EFFICIENCY

- Iron Sponge contains a highly active oxide with maximum capacity.
- Specially made shavings and patented chip filler available for less resistance and longer service.
- Connelly has developed the perfect, enduring alkali for all conditions.
- Suitable for high or low pressure purification.

HIGHER ECONOMY

- Reduces purifying costs because of more H_2S absorption with better and longer trace removal.
- Lowers operating and maintenance costs.

If you have a problem in gas purification, Connelly's 74 years' experience is available to you. Write for full details today.

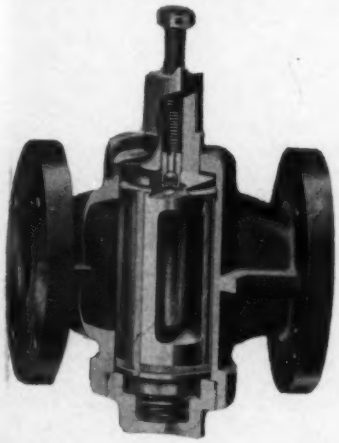
CONNELLY Inc.

3154 S. California Ave., Chicago 8
Elizabeth, N. J., Los Angeles, Calif.

New Lubricated Plug Valve

A new lubricated plug valve that is said to give longer leakless service, because it automatically compensates for wear, is announced by Homestead Valve Manufacturing Co., Coraopolis, Pa.

The cylindrical plug of the new valve has a wedge action which adjusts itself for wear



and keeps the sealing surfaces of the plug and body in intimate contact at all times. Line fluid pressure also acts on the plug to promote the sealing effect.

Among other features claimed for the new valve are port areas equal to the area of standard pipe; a complete lubricant seal around the ports; and positive, visible stops to limit operation to a quarter-turn.

Roper Announces New Prices and New Models

The Geo. D. Roper Corporation, Rockford, Ill., has announced price changes in Roper gas ranges, the introduction of specially priced campaign models, chrome plated cooking tops on several models, and a cooperative advertising and promotional program. The trade is being notified by letter.

Many price changes have been made throughout the line. The first of three new models introduced by Roper is a 36″ range with divided cooking top. Another is a 36″ fully automatic gas range, and the third is 40″ wide and is equipped with timer alarm-time clock.

The new cooperative advertising and promotional program inaugurated by Roper covers newspaper advertising, radio time, billboard space and paper, transportation advertising, home shows fairs, prizes for cooking schools and other events, window displays, folders, broadsides, cook books, bill inserts, electric signs, etc.

Tamper-Proof Lubricated Service Cock

New high-pressure lubricated service cocks, described as practically tamper-proof, have been introduced by the Walworth Company for working pressures up to 125 pounds on gas, oil, or water lines.

Available in ¾- and 1-inch sizes, the service cocks have cast iron bodies and bronze plugs, and are made with both screwed recessed ends and Dresser service ends. The devices have the advantages of the regular type of high pressure lubricated plug valves, in that the plug is always held against its seat in the body by a gland through resilient packing.

The bottom of the cock is a continuous casting, and the top is closed by means of a screw-type bronze gland, which requires

a special spanner wrench. Since such a wrench is required to disassemble this cock, the Walworth high-pressure lubricated service cock is virtually tamper-proof. All cocks are assembled, adjusted, and tested at 125 pounds air pressure under water at the factory.

CLEVELANDS

KEEP YOUR GAS TRENCHING JOBS MOVING

Compact—Mobile—Tough and Fast CLEVELANDS are your dependable means of keeping up with your schedules

THE CLEVELAND TRENCHER CO.
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

Export of Canadian Gas

(Continued from page 25)

authorities, would have to double their initial capacity in due course.

West Coast Transmission stated late last month that it was going ahead with plans to stretch its 100 million dollar natural gas pipe line from Athabaska, in northern Alberta, west to Dawson Creek, B.C., and then south to Vancouver and to the United States.

West Coast's President, Frank M. McMahon, in making this announcement stated that his company was awaiting Dominion government permission to complete the line and once this approval has been obtained, it would apply to the Alberta government for permission to export natural gas.

Mr. McMahon made this announcement after a statement had been made by Premier Manning of Alberta on July 19, that no exportation of gas would be allowed until the Province has enough for its own requirements.

Information coming from Canada is that no action will be taken on such a gas exportation application for at least a year. How much more time may elapse before Alberta would consider giving such approval is conjectural. But in the opinion of provincial authorities, the period would be several years at least.

Inability to get Canadian natural gas may not impose the hardship on Pacific Northwest utilities under present conditions, however, that would have been the case some months ago.

An alleviating factor of prime importance in this respect has been the sharply increased supply of fuel oil and the consequent lowering of its price.

Reduction Is Substantial

Whereas heavy residual oil previously had been selling at $2.45 a barrel, the quotation now has slipped to $1.75 a barrel on two-year contracts. In addition, the utilities are protected by "down escalator" clauses which protect them against further price drops. This is a reduction of nearly 29 per cent in the price of heavy oil.

In its study of the Pacific Northwest situation made a little more than a year ago when the question of importing Canadian natural gas was first mentioned, Ebasco Services, Inc., stated that the public utilities and heavy industry in general could pay 42 cents per 1,000 cu. ft. for natural gas while heavy oil was selling at $2.45 a barrel.

With fuel oil now drastically reduced in price, natural gas to be competitive cannot sell, according to present estimates emanating from the area, at more than a fraction above 31 cents per 1,000 cu. ft. This is about five cents per 1,000 cu. ft. less than the original estimated price at which Canadian gas was expected to be brought into the Pacific Northwest.

With high pressure gas line pipe now available in adequate supply, and with prices considerably lower than they had been when the first Canada to United States line was proposed, natural gas might be brought in much lower than 36 cents per 1,000 cu. ft. and on a basis fully competitive with oil at the latter's present price level.

Small Home Market Is Target of New Gas Furnace

A new model blower type, gas-fired, automatic winter air conditioner has been announced by Henderson Furnace and Mfg. Co., Sebastopol, Calif., following successful AGA laboratory testing and approval.

The new model is of 60,000 Btu input capacity, and is intended for heating smaller homes, with or without basement. It is 52" high, by 18 by 30".

think of it! YOU AVOID 80%-90% ON EXCAVATING COSTS BY USING HYDRAUGERS

From an operating trench approximately 3½ ft. by 8 ft., the HYDRAUGER bores clean open holes as far as 225 ft. This modern labor saving machine eliminates costly trenching, pavement damage, backfilling, interference with traffic, etc. Frequently saves 50%-75% on man-hours. Pays for itself within a year and often in a few weeks.

• • •

HYDRAUGER machines are available in 3 different types (3.2 and 5.2 horsepower). Bores 2 in. and 3½ in. hole. Bore-reams 3½ in., 4½ in., 6½ in., 8½ 10½ in., 12½ in., 14½ in. and under certain conditions to 24 in. dia. hole.

Write for Catalog No. 8 TODAY!

HYDRAUGER CORP., Ltd.
681 Market Street
San Francisco 5, California

OPEN HOLE

* Hydrauger

* Reg. U. S. Pat. Office

HY-13b

EARTH BORING TOOL

Use UNITED Services for Plant Development

Design
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Operation

UGI EQUIPMENT

UNITED ENGINEERS & CONSTRUCTORS INC
PHILADELPHIA, PA.

CLEVELAND

"A" TYPE METERS
"B" TYPE METERS
DIAPHRAGMS

Cleveland Gas Meter Co.
ESTABLISHED 1875
2009 Rockwell Ave., Cleveland 14, O. Phone CHerry 2351

Manufacturers Bring Out New Combination Ranges

Several manufacturers have recently brought out new gas ranges equipped with kitchen heating facilities. A news release from one manufacturer states: "During the past few years there has been a growing demand for gas ranges with built-in kitchen heaters, particularly from those who live in residences and flats where heat is not furnished."

Caloric Stove Corp., Philadelphia, has announced that it now has in production an all-gas "bungalow" range which provides complete cooking facilities and a room heating section. It is a four-burner, 36" range, with standard broiler. The heating section is not convertible to other fuels. It has temperature control, and develops 25,000 Btu input with LP-gas, and 30,000 Btu with other gases.

Cribben & Sexton Co., Chicago, have brought out the "Sheraton" model gas-cooking and gas-heating model. It is equipped with temperature regulator, and has a 31,000 Btu capacity with manufactured gas, and 28,000 Btu with other gases.

Majestic Manufacturing Co., St. Louis, has announced production of a "combination dual-oven" range, which it says is "engineered for two types of fuel; it has one oven, using either fuel separately or both at the same time. In addition, it heats the kitchen and supplies hot water."

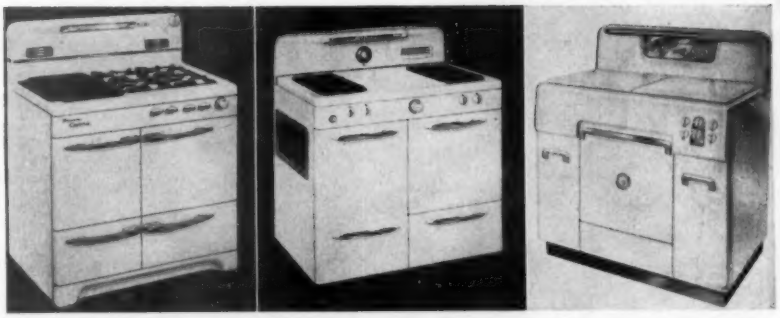
U. S. Announces New Line of Gas Water Heaters

A new line of automatic gas water heaters has been announced by United States Radiator Corp. A competitive price line and a quality line are available.

Gas-fired models are made in three price ranges, available in 20, 30 and 40 gallon sizes, for natural, mixed, manufactured or LP-gas. The new line will be merchandised through heating and plumbing jobbers only.

Bjorenson Now Represents Griffiths in SE

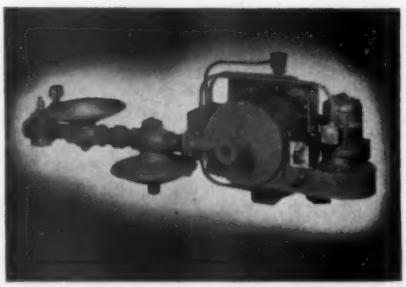
E. F. Griffiths Co., Philadelphia, manufacturers of conversion parts and other components for the gas industry, has appointed E. J. Bjorenson, with headquarters in Orlando, Fla., as direct factory representative for the southeastern states.



New combination ranges by (left) Caloric (center) the Sheraton Universal of Cribben & Sexton and (right) Majestic

North American Develops Boiler Burner

The North American Manufacturing Co., Cleveland, announces the addition of a new, "self-contained" boiler gas burner to its production line. This burner is a package unit for either old or new boiler settings. Two sizes are available—for two and one half million Btu input and for five million.



Bulletin 115 and other data on the burner are available from The North American Manufacturing Co., 4455 East 71 St., Cleveland 5.

New Rotary Machine Booklet

Illustrated descriptions of two lightweight rotary machines are given in a new eight-page bulletin, No. 359, issued by National Supply Co. The machines were developed for shallow or slim hole drilling.

The bulletin describes the design and construction of the machines, and includes features of lubrication, cross-sectional and dimensional drawings, and general specifications. Copies are available from The National Supply Co., Box 899A, Toledo.

Bryant Heater Develops New 'All-Weather' Conditioner

Bryant Heater Division has announced production of a new "All-Weather" 3-ton conditioner. Shipped in two completely assembled heating and cooling sections, it features controlled humidity for summer operation by employing a "reheat" cycle, which is exclusive in Bryant's conditioner.

Added features consist of a patented control circuit; simplicity of seasonal changeover; ease of installation; Fiberglas insulation throughout; and absence of exposed bolts and screws. As standard equipment, the two-stage burner control permits a low-stage and "reheat" input of 30,000 Btu per hour and a high-stage input of 150,000 Btu per hour.

During summer operation a squirrel cage type blower draws air into the unit through a cleanable air filter; through a series of coils where lowered temperatures extract excessive moisture; then forces the cool dry air through the heat exchanger where it is tempered by "reheat," if necessary, to a pre-selected temperature, and delivers it to the conditioned area. The change from one season's operation to the next is accomplished by the flick of a switch.

With the selector switch set for winter operation, air is drawn through the filter, forced through the heat exchanger where it is heated and humidified by means of an evaporative type, plenum mounted humidifier . . . then delivered to the conditioned space.

This initial production culminates more than a year of exhaustive field tests. Further information may be obtained from Bryant Heater Division, Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10,

CRUSE-KEMPER COMPANY

AMBLER, PENNA.

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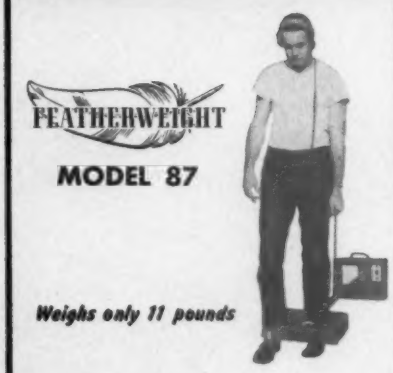

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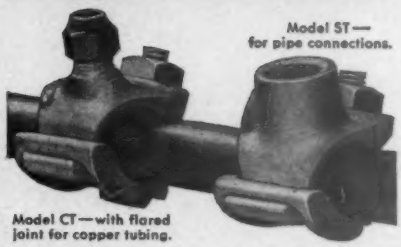

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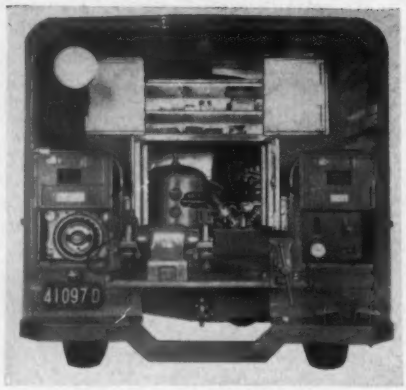

Rear view.

Mobile Field Service Unit

Production of a new mobile field service unit is announced by Davey Compressor Co., Kent, Ohio. It includes all equipment necessary for the servicing of military, mining, construction, oil field, agricultural or other machinery operating over large areas and distant from service centers. It is mounted on a 4-wheel drive truck.

Main equipment items include a 300 amp. welder and 8 kw-ac generator driven direct from the truck engine. This eliminates the necessity for separate engines for each piece of equipment, providing room for other needed equipment.

Other equipment includes: oxy-acetylene welding, cutting and brazing outfit; 8" electric motor-operated bench grinder, portable arbor press, floodlights; 7500 lb. winch, a complete complement of service tools, electric drills, etc.

The all-steel body provides space for the driver and six passengers.

Booklet on 'Speed Heating' Published by Selas

The extension of gas combustion to new levels of usefulness in industrial processing is described in "Speed Heating of Metals by the Gradiation Process," published by Selas Corporation of America, Philadelphia.

The "gradiation" method of speed heating, discussed in part one of the booklet coordinates rapid metal heating with automatic equipment. "In effect," the authors say, "Gradiation has re-introduced gas to industry as a heating agent and has raised potential uses . . . to levels that formerly were not contemplated"

The first principle of "gradiation" is to furnish a gas-heat gradient of such height, between the metal and the heat source, as to accomplish a given heating effect in a stated time. The booklet notes advantages as including time-saving, labor-saving, metallurgical improvements, and uniform production.

Steel, copper, and copper alloys are considered in part two with descriptions of metallurgical benefits, illustrated by photomicrographs.

Applications of the method, present and future, to heating for forging, brazing, and hardening are visualized in parts three and four, together with heating bars, tubes, billets and strip.

'Rise of the Gas Industry in Great Britain'—A New Book

"The Rise of the Gas Industry in Great Britain," by Dean Chandler and A. Douglas Lacey (British Gas Council, 1, Grosvenor Place, London S. W. 1., price 15 shillings.)

This new book is a survey of the birth of the gas industry and the first fifty years of its progress.

After a description of the earliest known experiments with coal gas, the authors describe the work of William Murdoch, the "Father of the Gas Industry," and the grandiose schemes of F. A. Winsor, who helped to bring gas to the notice of the public.

The first experiments in the use of gas for cooking and space heating are described, with the gradual change of emphasis from lighting to heating.

Among the facts brought out by the researches of the authors is that Pall Mall can no longer maintain its claim to have been the first street lighted by gas. They have proved that, a few months earlier, in the summer of 1807, Golden Lane, E. C. 1, was lighted by gas, largely owing to the enterprise of the proprietor of the Golden Lane Brewery.

The book is illustrated with reproductions of early drawings, photographs and engravings, and also contains two coloured plates.

Blaw-Knox Division Opens Office at Tulsa

Chemical Plants Division of Blaw-Knox Company, Pittsburgh, Pa., has announced the expansion of its oil and gas department and the opening of a district office at Tulsa, Okla. The new office will be under the supervision of R. H. Hazlett, manager of the department, and will provide sales and engineering services to the oil and gas industries of the Southwest.

Charles B. Barry, of Tulsa, has been appointed chief engineer for the oil and gas department and will have his headquarters in the district office. Since his graduation from Oklahoma A. & M. as a chemical engineer, Mr. Barry has had 10 years' experience covering both engineering and production operations in the petroleum and gas industries. For the past three years he was employed by Jones & Laughlin Supply Co. as process engineer in the engineering and construction division. Prior to that, he was with Phillips Petroleum.

Carl E. Baird, originally of Dallas, Texas, has been appointed sales representative for the Tulsa office. Mr. Baird was graduated from the University of Oklahoma with a degree in mechanical engineering. His business experience includes five years with Pittsburgh Equitable Meter Co. and Merco Nordstrom Valve Co., for whom he provided engineering and application service to the gas, refinery and chemical industries of the Southwest. He then spent three years as mechanical engineer for the helium division of the U. S. Bureau of Mines, followed by work for the Bureau's synthetic liquid fuels division. Late in 1946 he joined the gas equipment department of Blaw-Knox in an engineering and sales capacity.

New Gas Turbine

(Continued from page 21)

mum of turning of the high velocity gases. Each combustor is interconnected for ignition purposes.

The twelve combustors six inches in diameter and three feet long are located between the compressor and the turbine so as to provide a minimum of turning of the high velocity gases. Each combustor is interconnected for ignition purposes.

The combustor casings are made of barbon steel pipe with a bellows type expansion joint welded to the turbine end. They are clamped in place at each end by tapered flanges.

The flame tube, or inner basket, is made of chromium-nickel alloy sheet rolled into circular sections and spot welded together. When in operation, the flame is contained within this inner tube which is perforated to allow air to enter for combustion and necessary cooling.

The nozzle holders are of the bayonet type which can be extracted individually without removal of a combustor. The holders and combustors are designed to use either gas or oil as fuel. Transfer from one fuel to the other can be quickly accomplished by removing the nozzle holders and changing the nozzles without disturbing the combustors. To maintain high combustion efficiency over the entire load range, when burning liquid fuel, a small amount of natural gas is used for atomization.

The gas turbine has eigh stages designed for equal heat drops over the stationary and rotating blades. All of the turbine so as to provide a minichromium tungsten alloy. The rotating blades are tapered and twisted and have a serrated root machined on the base. The stationary blades have a single "T" type fastening which is held in place by caulking. All of the blading is unshrouded and is profiled at the tip.

The rotor is machined from a solid forging of stabilized 19-9 stainless steel, the main section being 14½ inches in diameter and 24 inches long.

The cylinder is made of stabilized 19-9 stainless steel, grooved for holding the stationary blading. All bolting is made of stainless steel material.

The starting motor is a 40 hp induction motor controlled by a drum type controller and resistors. The motor driving the main unit through the starting gear train is capable of rotating the unit at 25 per cent speed. After the starting cycle, the starting motor is disengaged by a disengaging coupling. On the extended end of the motor shaft is connected a turning for rotating the unit at approximately 10 rpm after shutdown to prevent thermal distortion of the rotating elements.

The Ingersoll-Rand gas booster is direct connected through a quill shaft and gear tooth coupling to the compressor end of the gas turbine unit. The booster is a single stage centrifugal blower with the impeller overhung on the bearings.

The booster casing is cast steel, made in two pieces, so that the entire rotor, bearings, and shaft seal is removable with the booster backplate. With this construction it is possible to remove and inspect all parts of the booster without opening any gas piping flanges.

The rotor shaft is supported in two sleeve bearings with a Kingsbury thrust bearing between the two sleeve bearings. The thrust bearing takes the thrust load from the high pressure on the end of the shaft combined with the thrust developed by the impeller at running speed. Between the sleeve bearing and the impeller there is an oil seal supplied with oil at a pressure higher than the gas pressure in the casing. This prevents any gas from leaking out of the casing at the shaft.

The lubrication and seal oil system has one pump which supplies oil to the bearings and a second high pressure pump which supplies oil to an overhead tank for the oil seal. In the event of pump failure, the overhead tank is pressurized by the gas pressure, so as to provide sufficient seal oil until the unit is shut down and all gas valves secured. The oil is cooled by a radiator type cooler with a ½ horsepower fan for air circulation, automatically controlled by a thermostat in the oil line.

The unit is protected against oil failure by two pressure switches, one to shut down the turbine in case of loss of bearing oil pressure, the other to shut down the turbine in case of dropping seal oil pressure. In the case of an emergency shutdown, the operator merely shut the booster inlet valve and opens a blow off valve to release the gas pressure from the casing.

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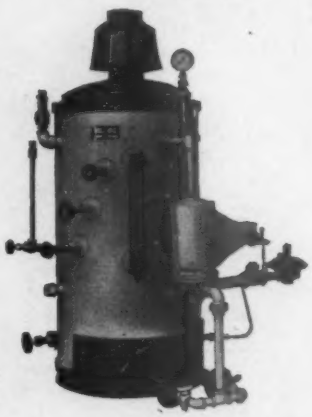

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